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CANADA
MEDICAL & SURGICAL JOURNAL

Original Communications.

A CASE OF PROGRESSIVE PERNICIOUS ANÆMIA,
(IDIOPATHIC OF ADDISON.)

—BY—

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The following case occurring in the practice of Dr. Gardner, is recorded as a contribution to the literature of a disease, rare, but by no means new, in any sense, concerning the pathology of which we have still a good deal to learn, and concerning the successful treatment of which we as yet know nothing.

G. A., æt. 52, a native of England, employed in a spike factory, first came under observation on the 5th November, 1876. He is a thin, spare, moderately well-built man of average stature, and, with gray hair and beard.

He is one of a large family, all of whom, except some who died in infancy, are now alive. His mother was very subject to diarrhœa. All of the family have had at one time or another serious illnesses, which, however, in their nature, have no bearing on the present case. Two or three members of the family have had a tendency to bleeding at the nose.

At the age of between six and seven, shortly after coming to Canada, he had a long illness of five or six months duration, the nature of which, beyond the fact that it was attended with fever of remittent type, could not be ascertained. After recovering from this illness, he continued to be very healthy and active, suffering from little except somewhat frequent, slight, and easily-controlled bleedings from the nose. He never had had free bleeding from slight wounds. He was, however, subject to occasional attacks of diarrhœa. During the last few years he had occasional attacks of lumbago, and pains in some of his joints. None of these complaints prevented him for more than a few days from continuing his employment, which, until within some months previous to his being laid up, involved a great deal of muscular exertion.

About five years ago he lost, within three months, the only two sons of his family, and his friends assert that, although he did not display much emotion, he took the bereavement greatly to heart, and that since then his health has greatly failed, that in particular he has become weaker and lost color.

Nearly two years ago this became so decided, that his friends induced him to go away for a change of air. He accordingly went to Toronto on a visit to a sister. During the first few days he felt better, but after exposure to cold and wet he was seized with an illness, setting in with rigors, and attended with cough, bloody sputa, and delirium. This illness lasted a fortnight, and was called by his medical attendant congestion of the lungs.

Ever since this illness he has been gradually growing paler and weaker, and liable during the summers, especially that of 1876, to frequent diarrhœa, never very severe, but rather constant. He would often have in the morning one or two loose motions, and during the day have no further trouble from it.

The symptoms of which he specially complained were weakness, attacks of shortness of breath, when he walked in the cold air, especially if he faced a wind, and diarrhœa—five or six motions in each twenty-four hours. Notwithstanding these symptoms he had been attending regularly to his occupation, which, however, did not involve much muscular

exertion. At this time the most striking feature of his case was a remarkable waxy pallor of the skin and mucous membranes, and a pearly appearance of the white of the eyes. He is somewhat deaf; this he attributes to his occupation in a noisy workshop.

Pulse rather more frequent than normal; temperature normal. Appetite by his own account and that of his friends, is good—he is able to eat meat; suffers no distress after food. Sleeps very soundly, and sleeps a great deal, much more than previous to the failure of his health. If he sits down and is let alone he is sure to go asleep. Is compelled to be up two or three times each night to make water. Urine very highly coloured; quantity in twenty-four hours thirty-four to forty ounces; specific gravity varied from 1012 to 1016 at different times; no albumen; no sugar; no bile pigment; no tube casts.

Complains of some numbness of his fingers, hands and fore-arms; has difficulty in buttoning his clothes, or in using his tools. Complains of a throbbing, rushing sensation in his temples. Says that he has suffered from decided diarrhoea for rather more than a month, but the number of motions in each twenty-four hours has not exceeded five or six. They have been painless and free from blood. Physical examination of the chest reveals nothing abnormal. The superficial cardiac dulness is normal in extent; the apex-beat natural in position; heart-sounds not specially changed—the first sound perhaps less accentuated than normal. There is a distinct bruit in the vessels of the neck and upper part of the chest.

The spleen is normal in size, or at all events not enlarged; the liver not enlarged.

The most careful examination reveals nowhere any pigmentation or bronzing of the skin. There is not the slightest evidence of enlargement of any of the superficial lymphatic glands. The symptom of which he complained most was the shortness of breath, which, as already mentioned, came on when he attempted to walk facing a wind, and was so urgent as to compel him to stop for a minute or two till he recovered his breath.

The liq. ferri pernitratidis was prescribed in doses of fifteen minims in a wine glassful of water three times a day, and also a diet from which vegetables and fruits were to be excluded. At the end of a week he returned to say that his diarrhœa had almost ceased, and that he fancied himself a little better. As on the previous occasion, he had walked from his house—fully three-quarters of a mile. There was no other change to note in the symptoms.

He continued to come regularly at intervals of a week for the next three weeks. During this time the diarrhœa had entirely left him; he was, he said, eating fairly, yet he was growing steadily weaker. The numbness of the fingers, hands and forearms was more marked, the difficulty in buttoning his clothes greater, the throbbing and rushing sensations in the head more distressing and the drowsiness more troublesome. A loud systolic bruit, much intensified by exertion, had developed in the region of the heart, loudest at the base, but heard also at the apex. The murmur in the vessels of the neck had become exceedingly loud.

At this time there was no œdema of face or ankles. The attacks of dyspnœa had been much mitigated by wearing a respirator over the mouth on going into the cold air.

He continued to take the pernitrate of iron during the first three weeks, but the only effect noticed from its use, if indeed it deserves the credit, was the cessation of the diarrhœa. The ammonio-citrate was then given instead for the next two weeks, but without the least benefit. Cod liver oil was next prescribed, but it disagreed so markedly that it was discontinued at once. He had not been seen for a fortnight, when, on the 29th December, a message was received asking that he should be seen at his house. There was little change to note in his condition, other than an intensification of the symptoms previously noted. The pallor was more intense, the weakness greater, the drowsiness and deafness more marked, but in addition there was slight œdema of the ankles and eyelids. Vallet's pills were now prescribed and taken for a week, but without the slightest benefit, as he continued to grow steadily weaker and worse, being scarcely

able to leave his bed. On the evening of the 11th January of the present year, an urgent message to see him was received. On reaching his house it was found that on being assisted out of bed to make water, he had had an attack, apparently syncopal in its nature, and that at times, especially when left to himself, he was rambling and incoherent. He, however, answered questions correctly. He was very restless; pulse 110, temperature 102° . He had also been vomiting.

Jan. 12th.—Noon—Temperature has fallen to 101° . Other symptoms as at last report. Dr. Howard, Professor of Medicine, McGill University, saw him in consultation at this visit, and fully concurred in the diagnosis.

At 10 p. m. the pulse was 105 and the temperature 97.5° . Retention of urine, requiring the use of the catheter. Urine very high-colored, red-brown, acidity normal, no albumen, sugar or bile-pigment; specific gravity, 1016.

Jan. 13th.—11 a. m.—Pulse 98, temperature, 97.3° . Not so restless, still incoherent; vomits everything; catheter has to be introduced regularly.

Jan. 14th.—Died at 3 a. m.

The blood examined during life presented the following appearances in a specimen obtained, in a capillary tube, fifteen hours before death, and examined without the addition of any reagent, 30" after withdrawal. (Hartnack, No. 9 im. and Oc. 3.)

About one-half of the red blood corpuscles run together to form rouleaux. The majority of them appear of large size, but do not present the characteristic round contours of these bodies; many are ovoid, others lozenge-shaped, or of various forms, with irregular projections and processes. Isolated corpuscles look of the natural pale yellow colour, but the alternating light and dark centre with the change of focus is not so distinct as usual. On touching the top cover and causing them to roll over, many do not present the biconcave appearance, but look thin and flattened out. A limited number are crenated. In each field certain small round red corpuscles are seen, sometimes as many as six or eight. They are spheres, not biconcave, of

a pale yellow colour, occasionally crenated or irregular in form.

The measurements of some of the coloured elements are given below (Hartnack No. 16 im.), from which an accurate idea is obtained of the remarkable discrepancies in size. About forty measurements were made of corpuscles taken at random in two or three specimens obtained a few days before death. Of these one was $\frac{18}{33}$ " by $\frac{15}{19}$ " of an inch, being somewhat elongated. Five ranged from $\frac{17}{30}$ " to $\frac{21}{13}$ ", these being the extremes. In twenty-two the range was from $\frac{30}{60}$ " $\frac{42}{60}$ " to $\frac{30}{60}$ ". In this group the usual looking red disks occurred. In five the diameter varied from between $\frac{30}{60}$ " and $\frac{30}{60}$ ". In five the diameter was less than the $\frac{30}{60}$ ", the lowest being $\frac{13}{14}$ ".

Prolonged examination failed to discover a single nucleated red corpuscle.

The colourless corpuscles did not appear relatively increased. One or two were seen in each field of the No. 9 and 3. The measurements in five corpuscles ranged from $\frac{23}{60}$ " to $\frac{13}{60}$ ". They were quite natural looking, and displayed a remarkable degree of vitality. In a slide mounted and surrounded with paraffine at 1 P.M., the amœboid movements were very active, the temperature of the room being about 60°. At 7 P.M. the slide was carried in the hand a distance of a quarter of a mile to the house of a friend (temperature —), and the irregular changes in outline were still observed, and continued until 8:40, when the observation was omitted. There was an entire absence of Schultze's granular masses.

Autopsy.—Thirty-two hours after death.

Body that of a well-built man of fair muscular development. Hair grey. No emaciation; panniculus adiposus well developed, especially over abdomen. Skin of extraordinary pallor,

* It may be here mentioned that the statement of Ranvier, *Traite d'Histologie* (p. 210), that the amœboid movements of white blood corpuscles do not go on at ordinary temperatures is incorrect. In University College Laboratory, London, it was found on one occasion that the amœboid movement continued in the colourless corpuscles twenty-four hours after removal from the body. The blood was sealed in a capillary tube, and remained at the ordinary temperature in the month of June.

with slight lemon tint, the shoulders marked with patches of deeper yellow hue. A few old psoriasis spots seen in the region of the elbows and knees. No petechiæ. *Lineæ albicantiæ* in the skin of groins, and upper and outer aspect of thighs, and on the outer edge of anterior folds of axillæ. Fingers slightly clubbed, and the nails of both hands markedly incurvated. Rigor mortis moderately well marked. Post mortem stains scarcely perceptible. No enlargement of the superficial lymphatic glands. No cadaveric odour.

Brain.—Not examined.

On making the preliminary incision a layer of deep yellow fat, fully an inch in thickness, is cut through over the abdomen. Muscles of the thorax of a remarkably healthy red colour. In the abdominal cavity the position of the viscera normal. Omentum moderately fatty. In the thorax a considerable amount of fat over the pericardium. The left pleural sac contains twelve ounces of bloody, yellowish-tinged, serum. A few strong adhesions posteriorly. In the right pleural sac ten to twelve ounces of fluid of the same character. Adhesions more numerous at apex and sides.

Pericardium.—Contains six drachms of a yellowish, bloody serum. No ecchymoses on either leaf.

Heart.—Large, excessively flabby. Sub-pericardial fat abundant about the base and in the anterior ventricular groove. Patch of attrition over upper part of right ventricle in front, and another behind, near the inferior vena cava. On opening the heart in situ an ounce of blood, with one small coagulum, in the cavities of the right side, and ten drachms in those of the left. Organ flaccid, and walls collapsed when laid on the table. Right auricle normal. Right ventricle somewhat dilated, the endocardium stained by imbibition. Tricuspid valves a little thickened and gelatinous at the edges; orifice of normal size. Pulmonary semi-lunar valves healthy, one segment fenestrated. Cavity of left ventricle large, walls of normal thickness. Mitral valves quite healthy, a little stained; orifice of proper size. Aortic semi-lunar valves a little opaque; slight atheroma at their bases, and on the aorta opposite their

free borders. Sinuses of Valsalva very distinct. Nothing abnormal in the left auricle. Muscle substance of the organ exceedingly pale, having a yellowish, faded-leaf appearance, especially marked in the walls of the left ventricle.

Aorta., both arch and trunk of full size. Beyond the left sub-clavian there is a flattened patch of atheroma, about the size of a half-penny.

Lungs.—Deeply pigmented; crepitant throughout; lower lobes œdematous and dark in colour posteriorly. The mucous membrane of the *Trachea* at the bifurcation, and extending irregularly nearly to the larynx, is represented by a number of bony plates, lying immediately upon the cartilages, which are themselves very dense, and partially ossified.

Spleen.—Weight, six ounces; soft and flabby. Capsule a little opaque. On section, pulp soft, of a light brownish-red colour. Trabeculæ distinct. Malpighian corpuscles not evident. Very little blood in the organ; none could be obtained from the splenic vein.

Left Kidney.—Length, 5". Unusual amount of superficial fat. Capsule loosely attached, and on removal leaves a very anæmic-looking organ. No atrophy of the cortex, which is pale and bloodless. Pyramids, except at the bases, also pale. *Right Kidney*, 4½" long, dark red in colour, uniformly congested, forming a striking contrast to the other. Capsule easily detached; stellate veins prominent. On section, both cortex and medulla contain much blood.

Supra-renal Capsules.—The right is soft in the centre, and somewhat larger than the left, but nothing unusual about either.

Bladder.—Distended with pale urine. Mucous membrane healthy looking. Prostate gland of full size.

Tonsils and glands at root of tongue not enlarged. Several ecchymoses beneath the mucous membrane of the anterior wall of the pharynx. *Œsophagus* presents nothing unusual; a few small extravasations are noticed near the cardia.

Mucous membrane of *stomach* pale, and at the cardiac end thin; at the pylorus it is thicker. *Duodenum* healthy; common.

bile duct is pervious. *Jejunum* contains a quantity of dirty-yellow mucus. Mucous membrane is pale. In the *ilium*, Peyer's patches are scarcely perceptible; the solitary glands towards the ileo-cæcal valve are alone distinct. In the *large bowel* the mucous membrane is anæmic. No ulceration. Scybalæ in transverse and descending colon.

Liver.—Rather small, of a light yellow colour, especially in the left lobe. Capsule smooth. On section a small quantity of liquid blood is seen in some of the hepatic veins. In places there is a very slight injection of the intra-lobular veins, which relieves the otherwise uniformly pale surface.

Gall-bladder.—Full of dark tarry bile.

Pancreas.—Looks healthy.

Abdominal blood-vessels almost entirely empty. No blood in inferior vena cava or aorta. Intima of both healthy-looking. *Thoracic Duct* pervious throughout. Mesenteric and retro-peritoneal *lymphatic glands* small, the former unusually so, requiring considerable searching to obtain any. The amount of blood in the body appeared remarkably diminished, and it was only by pressing along the limbs that sufficient could be obtained from the veins to fill a small homœopathic phial.

Piece of the sternum, the upper half of right fibula, the inner third of left clavicle, half a rib, and one of the last dorsal vertebræ were removed for the examination of the marrow. Blood was collected from the heart, and junction of left jugular vein with the sub-clavian.

A striking feature in the autopsy is the extreme anæmia of the organs, their almost entire bloodlessness, and consequent pallor, the right kidney excepted

HISTOLOGICAL EXAMINATION.

The blood taken from heart and veins shows the same general characters noticed during life. Prolonged examination of different specimens made for this special object resulted in the detection of two nucleated red blood corpuscles.

Heart.—The fibres are in a condition of extreme fatty degeneration, the striæ being obscured by the number of densely

crowded droplets and fine molecular fat ; only here and there a fibre occurs in which the striæ are faintly seen. In teased preparations numerous short bits occur, together with oil-drops and granules of fatty matter. In places there appears to be a good deal of interfibrillar connective tissue with fat cells.

Muscles of the Trunk.—The fibres of the thoracic muscles—which were observed to be of such a natural appearance—present no trace of fatty degeneration.

Spleen.—The ordinary corpuscles of the pulp, together with elongated, sometimes branched, cells of the retiform tissue are the chief elements seen in teased specimens. The red corpuscles have lost their colouring matter. A few cells containing red blood corpuscles are seen, but no nucleated red cells.

Kidney.—Teased preparations show the epithelium of the tubules, both in the cortex and pyramids, covered with fatty matter in the form of minute drops and fine granules ; nowhere, not even in the large collecting tubes, are the cells distinct. The Malpighian corpuscles also contain many granules and small oil-drops, and the same exist abundantly in the field.

Liver.—Cells are stuffed with oil-drops ; none noticed without them, while in many the protoplasm and nucleus are entirely obscured. Free fat exists infiltrated between the cells, and in the field. In a few, bile pigment is seen.

Mesenteric Glands.—Teased portions present a large number of perfectly normal-looking lymph corpuscles, among which the connective tissue elements occur in the usual proportion. Many of the small vessels and capillaries have their walls uniformly studded with fat grains, and may be traced as dark branching lines. In others, the deposition is not so extensive.

Nothing abnormal observed in the axillary lymphatic glands.

Medulla of Bones.—The marrow of all the bones examined—sternum, ribs, clavicle, vertebra, fibula—is of a dark violet-red colour, thick, about the consistence and colour of the spleen pulp in fever. In the clavicle it is more diffuent, of a lighter red colour, and to the naked eye looks a little fatty—an appearance not noticeable in the other bones, not even in the shaft of the fibula.

On microscopical examination, the following elements were found:—

(1) Colourless corpuscles—marrow cells—of various size, with granular protoplasm, and bold vesicular nuclei. The greater number of these are larger than white blood corpuscles, and usually have a single nucleus, sometimes two. Others are smaller, more approaching the blood corpuscles in form, while in all the specimens examined, small round cells, like ordinary lymph corpuscles, are also found. The above represent the common colourless elements found in marrow, and they form the majority of the corpuscles in the field. In eight of the larger cells the extremes of measurements were $13\frac{1}{71}$ " by $13\frac{1}{33}$ " and $22\frac{1}{66}$ " by $23\frac{1}{95}$ ".

(2) Coloured blood corpuscles, of which two varieties are seen; (a) ordinary biconcave disks, somewhat irregular in shape, and often, as noticed in the blood during life, provided with long processes. They are abundant, forming the large proportion of coloured elements. In the fibula, sternum, and ribs the colouring matter is retained, while in the vertebra and clavicle it has disappeared from most of the corpuscles, and they are recognizable only as outlines. (b) Small round red corpuscles, non-nucleated, from one-quarter to one-half the size of ordinary corpuscles, and similar in appearance to the small forms seen in the blood. They occur most numerous in the marrow of the fibula, where they form fully one-fourth of the coloured corpuscles. In the sternum and ribs they are not so abundant, though occurring in each field. As described in the blood itself, they do not appear to be biconcave disks, but spheres. The colouration is quite as intense as in form *a*, and a few were observed to be crenated.

(3) Nucleated red corpuscles, the "transitional" forms of Neumann, which are numerous in the sternum and ribs, less so in the fibula, while in the clavicle and vertebra they occur scantily, or, owing to the general decolorization of the red corpuscles in these bones, are seen with difficulty. As shown by the measurements given below they are as a rule larger than ordinary blood corpuscles, but present, like them, a perfectly homogene-

ous coloured stroma, in which a finely granular nucleus is imbedded. They are spheres, not biconcave, as a rule round, though frequently irregular in outline, or with one end pointed and prolonged. The intensity of the colouration in most cases equalled that of the ordinary red corpuscles, in some instances being deeper, in others not so marked. The nuclei are either round or elliptical, and occupy from one-quarter to one-half of the body of the cell (see measurements). They are solid, granular, and inside the corpuscle look coloured, though not so deep as the surrounding substance. The presence of nucleolus could not be determined. The position in the cells is variable; in specimens examined within a short time after the post-mortem they appeared to be chiefly centric, but in preparations taken the next day very many of them had become quite peripheral, while others had protruded almost through the corpuscle, when it could be clearly seen that the nucleus was colourless. In several instances the nuclei are seen to be entirely outside the cells, though remaining attached to them. In this condition they look not unlike the small lymphoid marrow cells, and it is only the large size of the corpuscles to which they adhere, and the fact that in the same field others may be seen half-way out, that enables a correct opinion to be formed. In three or four instances dumb-bell-shaped nuclei were noticed. Cells with two nuclei were not uncommon, and instances with three and four were observed. As remarked above, the nucleated red forms are numerous in the sternum and ribs, six to eight being seen at once in the field of the No. 9 im. and 3, while in the fibula not more than three or four were noticed in any single field. In fifteen measurements of these forms, eleven were above the $\frac{20}{100}$ ''; five being $\frac{11}{28}$ ''.

The following measurements are of three corpuscles with their contained nuclei:— (1) $\frac{11}{14}$ '' by $\frac{22}{100}$ ''; nucleus $\frac{26}{119}$ '' by $\frac{22}{100}$ ''.

(2) $\frac{22}{100}$ '' by $\frac{23}{91}$ ''; nucleus $\frac{23}{68}$ '' by $\frac{20}{100}$ ''.

(3) $\frac{20}{37}$ '' by $\frac{19}{64}$ ''; nucleus $\frac{26}{68}$ '' by $\frac{22}{37}$ ''.

A good idea of the irregularity in outline of these corpuscles and the slightly elliptical character of the nuclei may be gathered from the above.

(4) Cells containing red blood corpuscles. These are very

abundant in the marrow of the vertebra, three or four occurring in the field at once, and containing from five to six red corpuscles, the colour and outlines of which in most cases are preserved. In the sternum and ribs they are not nearly so numerous; in the fibula and clavicle they were not observed.

(5) Myeloplques, of which one or two only were met with in the marrow of the sternum and rib. Neither in the shaft nor epiphysis of the fibula could these forms be determined.

(6) Fat cells, which are present in marrow of the clavicle in small numbers, absent in the sternum, vertebra and rib. In marrow from the fibula an oil-drop is occasionally met with in the field, but here also they are almost entirely absent.

(7) The octahedra crystals, first described by Charcot, and which always occur in the marrow from twelve to thirty-six hours after death.

REMARKS.—Apart from the clinical features and general pathological appearances of the above case, which show it to be an exceedingly typical one, there are two points of special interest, viz., the appearances of the blood, and the condition of the bone marrow, both of which are deserving of a few comments.

Prof. Eichorst has drawn attention in a short note* to the presence in the blood of patients suffering with pernicious anæmia of exceedingly small red corpuscles, which he regards as pathognomonic of the disease, and affording a valuable diagnostic sign, being present in all of his cases, seven in number. The following are his own words:

“Some of the red globules are of normal size, but very pale and have lost their tendency to form rouleaux, others scarcely attain $\frac{1}{4}$ the diameter of a normal, perfect corpuscle, so that they look like small drops of fat tinged red, and have not their biconcave appearance.” Towards the latter stages of the disease he states that they increase, so that before death they may equal in number the common forms.

The histological examination, both before and after death,

* *Centralblatt f. die. Med. Wissen.* June 24th, 1876.

and the measurements above given, show that in this instance the blood did contain an unusual number of small coloured elements, and is so far confirmatory of Eichorst's statement. Though not abundant, they were quite numerous enough to attract attention, and offered a striking contrast to the other red corpuscles about them, many of which were large, flattened out,—and less biconcave than usual. A great variation in size was noticed in all the specimens examined, and range as given in the measurements, from $\frac{1}{64}$ " to $\frac{1}{16}$ " must be regarded as very remarkable. That these tiny elements are red corpuscles there can be no doubt, as with No. 16 Hartnack (1-36th) they appear homogeneous, of a pale yellow colour, and, like the larger forms, they are sometimes crenated. In the third case reported in Dr. Howard's paper on the subject,* the blood of which one of us (Dr. O.) had an opportunity of examining in the spring of 1875, the note on the appearances of the blood is as follows: "There is a somewhat unusual variation in size among the red corpuscles, many of them scarcely measure the $\frac{1}{16}$ th part of an inch in diameter. The white corpuscles also present slight variations in size and are more granular than normal. Max Schultze's granular masses are abundant." Cohnheim, in a case which will be more fully referred to hereafter, states that the presence of the small blood corpuscles was established. Quincke† also speaks of the inequalities in the size of the red blood corpuscles, many of which were small and round. In three of his cases these smaller forms presented great irregularities in contour. These are, I believe, the only positive observations on this point. On the other hand, there is a note by Prof. Grainger Stewart of Edinburgh,‡ in which he states, that the blood in two cases of pernicious anæmia, under treatment at the time, did not present the small red corpuscles described by Eichorst. Among recent cases in which the blood was carefully examined,

* Read before the International Medical Congress at Philadelphia, and being published in the forthcoming Report.

† Volkmann's Sammlung Klinischer Vorträge, No. 100., translated in Medical Times and Gazette, Oct. 14th, 1876.

‡ Brit. Medical Journal, July 8th, 1876.

and no mention made either of small forms or great variations in size are those of Pepper,* Scheby-Buch,† Pye Smith,‡ Lepine.§ Bradford,|| in his case, made a most careful examination of the blood, and reports not much variation in size, but that all are rather smaller than usual. In Ferrand's case¶ many of the red blood corpuscles were larger than normal, no mention is made of any diminution in size. In Bradbury's case** the red corpuscles were larger than normal, pale, and exceedingly irregular in shape. No small forms were noticed. Burger†† did not notice any great variations in size, but a peculiar paleness about them. Immermann‡‡ makes no mention of alterations in form or size in the red corpuscles.

The presence of very small red disks in healthy blood is not common, still one of us (Dr. O.) has occasionally measured forms not $\frac{1}{100}$ th of an inch in diameter, both in his own and in the blood of other quite healthy individuals. Laptschinsky§§ has also found these small corpuscles in the blood of patients with various febrile affections, and speaks of them as being numerous, about $\frac{1}{2}$ the size of ordinary red corpuscles, some having an intensely red colour, whilst others are pale. In the blood from the above reported case, drawn in capillary tubes, and not examined until some hours after, many of the red corpuscles appear as deeply coloured spheres, slightly smaller than natural. This is a physical alteration, resulting apparently in a change from a disk-shape to a sphere, with, perhaps, a condensation of the corpuscle. These forms were not present in perfectly fresh blood, but could be seen in the slide six or eight hours

* Amer. Journal of Med. Sciences, Oct. 1875.

† Deutesches Archiv. f. Klin. Medicin, April, 1876.

‡ Virchow's Archiv. Bd. 65. hft. 4. Dec. 1875.

§ Bulletin General de Therapeutique, 30 Juillet, 1876.

|| Boston Medical and Surgical Journal, May, 1876.

¶ Bulletin General de Therapeutique, Dec. 15, 1876.

** Brit. Medical Journal, Dec. 30, 1876.

†† Berliner Klin. Wochenschrift, No. 33, 1876.

‡‡ Ziemssen's Handbuch der speciellen Path. and Therap. Bd. xiii. Art. Pro. Pernic. Anæm., 1875.

§§ Centralblatt f. d. Med. Wissen. No. 42, 1874.

after mounting. It is interesting to remark with reference to the large corpuscles, that Hayem* states that during a long course of iron—just such as this man had been subjected to—the red disks undergo an increase in volume.

Until we possess more definite knowledge than we do at present of the variation in size of the red corpuscles in constitutional and febrile diseases, it would be hasty, from the limited number of observations, to conclude that the presence of the small coloured corpuscles is pathognomonic of, or even affords a positive diagnostic sign in, progressive pernicious anæmia. It remains for subsequent observers to note accurately the size of the red corpuscles in this disease, and it will not be long before we are in a position to arrive at a satisfactory conclusion on this interesting point.

In a disease like pernicious anæmia, which after death is not characterized by any important lesion in the viscera or glands, it was natural that attention should be directed to the bone marrow, a structure now ranked among the blood-forming organs, and which in leukæmia, and pseudo-leukæmia (anæmia lymphatica, or Hodgkin's disease) has been found remarkably altered, so much so that myelogenous forms of both have been described. With the two affections just named the one in question is closely allied, and in its clinical features almost identical. From the splenic and lymphatic forms of both, it is distinguished by the absence of enlargement of the spleen and lymphatic glands, and additionally from leukæmia by the failure of any increase in the white blood corpuscles. In those rare cases of leukæmia, where the disease is confined to the bone marrow—myelogenous form—the only distinguishing feature is the excessive number of colourless corpuscles in the blood, with, perhaps, tenderness over the affected bones (Mosler). Immermann† quotes a case in illustration of this. In the still rarer cases of myelogenous pseudo-leukæmia, where the affection is uncomplicated with disease of the spleen or lymphatic glands, a differential diagnosis would be impossible, (compare the remarkable cases

* Bulletin General de Therapeutique, Dec. 15th 1876.

† Loc. Cit. p. 651.

given by Wood*). It is not to be wondered at that some writers (Immermann and Jaccoud†) should hint at the identity of the two diseases, or that Pepper, encouraged by the appearance of the marrow in one of his cases, should state that progressive pernicious anæmia was “merely the simple medullary form of pseudo-leukæmia.”

The evidence of an implication of the marrow in this disease rests upon the following reports: the first case in which it was examined was one of Pepper's, in which the marrow of the radius and sternum was “made up almost entirely of small granular cells.” Passing over a case observed by Fede,‡ and recorded as one of pernicious anæmia, but which ought to be regarded as a well-marked myelogenous pseudo-leukæmia, the next observation is by Scheby-Buch,§ in one of whose cases the marrow of the radius was pale red in colour, and contained numerous cells like white blood corpuscles, and very few red corpuscles or fat cells. In Lepine's|| case nothing unusual was found. Burger¶ states that there was no affection of the marrow in his case. By far the most extended account of the changes in the marrow in this disease is that given by Cohnheim in a letter to Virchow.** The following is a summary of the appearances described: Marrow of all the bones intensely red; fat almost entirely absent. Microscopically there were (1), ordinary marrow cells of various sizes, some small and lymphoid in character, others large and with vesicular nuclei; (2.) coloured elements in almost equal number, of these the common, biconcave, red blood corpuscles formed a decided minority, while the number of red non-nucleated corpuscles of various dimensions was very evident. The smallest of these had the diameter of normal red blood corpuscles, the largest were more than

* Am. Journ. of Medical Sciences, Oct. 1871.

† Nouv. Dict. de Med. et de Chirurg. Leucocytémie.

‡ Quoted in Centralblatt, f. die. Med. Wissen., Oct. 16th, 1875.

§ Loc. cit.

|| Loc. cit.

¶ Loc. cit. No. 34, 1876.

** Virchow. Archiv. Bd. lxxviii, Hft., 2. Oct. 26, 1876.

double the size of colourless blood corpuscles, and between them forms intermediate in size. (3.) Nucleated red corpuscles in great abundance, and of various sizes, the majority equalling in size the smaller of the true marrow cells. The blood examined after death was also found to contain a few of the nucleated red corpuscles. In Quincke's article no details are given, and this part of the question is disposed of with the remark: "The marrow of the bone showed no abnormality." In Bradbury's case, the red marrow from the right tibia looked natural, and was made up almost entirely of granular spheroidal cells, like white blood corpuscles. In that from the sternum the cells were much larger, and red globules more abundant. Coloured corpuscles were not numerous.

These are the only facts for and against the view that pernicious anæmia is the medullary form of pseudo-leukæmia. The general statement of Quincke, and the more definite ones of Lepine and Burger, are not very satisfactory, as no details are given; still, they must be accepted as negative evidence. It may be held with Bradbury* that the changes in the marrow of the sternum and radius in Pepper's case were scarcely sufficient to indicate serious diseases of that structure, as only the normal elements were found, though in the radius in slightly increased numbers, and the same may be said of Scheby-Buch's case. In Cohnheim's case and our own the constitution of the medulla was altered, and, in addition to ordinary marrow cells, it contained lymphoid corpuscles, embryonal forms,† and red blood corpuscles of various sizes. The detection, too, in both, of the embryonal forms in the blood, though in quite insignificant numbers, places them apart from the others; and on these grounds they alone are strictly comparable with myelogenous leukæmia. Indeed, the question at once arises whether we have not to do here with

* Loc Cit.

† In a recent note in the *Archiv. f. Mikroskop. Anatomie*, Bd. xii. p. 796, Neumann expresses a wish that the term "transitional," as applied to the nucleated red corpuscles, should be dropped, as involving an hypothesis about their origin, advanced rather too confidently by him. He would substitute the term "embryonal" or "developmental" form.

uncomplicated cases of medullary pseudo-leukæmia, similar to one of those described by Wood*. A consideration of the symptoms will not help us, and the remarkable admission must be made, that while the ante mortem diagnosis of pernicious anæmia was correct, a post-mortem one of pseudo-leukæmia might be equally so.

The absence of these changes in the marrow in the cases of Quinke, Lepinc, and Burger proves that the disease in certain cases is independent of any affection of this structure; and we must either regard implication of the marrow as an accidental complication, having but little to do with the cause or progress of the disease, or refer all cases in which it is met with to the category of myelogenous affections. Can the state of the marrow be regarded as an accidental complication, a secondary change, depending on the grave constitutional disease? Our knowledge of the condition of this tissue in disease is not at all complete, and the only observations at hand on the subject are the following:

Neumann† met with great hyperplasia of the marrow in a case of Addison's disease.

Wood, in a paper already referred to, says, that he has "made a number of examinations of long bones taken from patients dead of various chronic diseases, and never, except in a single case, found any abundance of the leucocytes;" and this was probably a case of leukæmia. In 14 examinations made by Dr. Osler of the marrow of the long bones, obtained chiefly from chronic Hospital cases, in only one was there found hyperplasia and marked alteration in its constitution; and in this instance there is a strong probability of the case belonging to the group under consideration.

Altogether, the few facts we have are opposed to the view that in chronic diseases, accompanied with anæmia and wasting, hyperplasia of the marrow of the long bones occurs as a secondary change.

Cohnheim‡ writing to Virchow, on his case, says, "You will

* Loc. Cit. p. 293.

† Quoted in Quarterly Journal of Microscopy, 1871.

‡ Loc. Cit. p. 382.

certainly agree with me in taking for granted that the above-described condition of the marrow stands in intimate connection with the fatal disease of the patient. That in this affection (progressive pernicious anaemia) we have to deal with a profound disturbance in the constitution of the blood all observers are at one ; and, on the other hand, it can at present be no longer doubtful that an important disease of the marrow must have a serious influence on the composition of the blood."

With this statement we concur, and are inclined to regard the affection of the marrow in our case as the *fons et origo mali*.

HOW TO DIAGNOSE CERTAIN FORMS OF INSA NITY,

BY HENRY HOWARD, M.D., M.R.C.S., ENG.

Medical Superintendent Longue Pointe Asylum.

MR. PRESIDENT AND GENTLEMEN,—In the month of December, 1875, I had the honour to read before the Society a paper on "Man's Moral Responsibility, from a scientific stand-point." In that paper I endeavoured to prove to you that mind and body are one, and moreover, that as there were no two persons in the world physically alike, neither were there any two in the world whose mental organizations were exactly the same ; in fact, that no two persons in the world, if they would, could think alike. A valued friend of mine, a member of this Society, has lately placed in my hands a work by one of the greatest living authors, its title is "The Grammar of Assent," by the Rev. John Henry Newman. After speaking of the differences between man and brute, he says "And in like manner as regards John and Richard when compared with one another, each is himself and nothing else, and though regarded abstractedly, the two may fairly be said to have something in common, viz., that abstract sameness, which does not exist at all, yet strictly speaking they have nothing in common for they have a vested interest in all that they respectively are : and moreover, what seems to be common in the two becomes in fact so uncommon, so *sui*

simile, in their respective individualities. The bodily frame of each is so singled out from all other bodies by its special constitution, sound or weak by its vitality, activity, pathological history and changes; and again, the mind of each is so distinct from all other minds, in disposition, powers and habits,—that instead of saying, as logicians say, that the two men differ only in numbers, we ought, I repeat, rather to say that they differ from each other in all that they are, in identity, in incommunicability, in personality.” Now, if the theory I put forward in the paper alluded to, be true, and with such an authority as I have just quoted, it will hardly be doubted, it is very easy for us to understand how the very same disease in different individuals present such different phases; and how a medical man cannot treat John and Richard exactly alike, although he knows that both of his patients have got typhoid fever. If I this evening lay down for you some diagnostic symptoms, to enable you to diagnose some certain forms of insanity, you must not expect that these symptoms will be well developed in all cases, and this will not surprise you if you bear in mind the fact that there are not two persons exactly alike physically, mentally, anatomically, physiologically, or pathologically.

You are all aware that from the very earliest history that we have of the animal man, it was a common practice amongst all peoples, to feign madness, that their lives might be spared when they fell into the hands of their enemies, a proof that madmen were not held responsible for their acts; indeed, amongst some nations they were rather feared and respected as men under Divine inspiration, and their insane babbling considered as a proof. And again, other madmen were put to death because they said they were inspired. Indeed the very latest accounts from Russia gravely inform the world that certain fanatics had been sent to work in the mines in Siberia. One called himself the prophet Esdras, and a poor mad-woman called herself the Virgin Mary. I think, myself, that all fanatics are touched in the upper story, and society would be the better if they were placed in a lunatic asylum: but to send a set of lunatics to work in the mines of Siberia, I consider a piece of barbarism.

“ *The Sweet Singer of Israel*,”—David—played the madman very successfully before Achish, the King of Gath, by scrabbling on the doors of the gate, and allowing his spittle to fall down upon his beard, so that the king said, “Ye see the man is mad, wherefore then have ye brought him to me.” I need not warn the members of this society not to look for these symptoms in cases of insanity; such feigning would not do in the present day.

Hamlet, when he played the fool, was simply a case, in my idea, of a madman playing the fool, which, I assure you is by no means uncommon amongst lunatics. In King Lear we find a tolerably good example of feigning madness, by Edgar son of the Earl of Gloster, to escape from the consequences of the treachery of his bastard brother. “I heard myself proclaimed, and by the happy hollow of a tree escaped the hunt. No part is free, no place that guard, and most unusual vigilance does not attend my taking, while I may ’scape I will preserve myself; and once bethought to take the *basest* and most *poorest* shape; that ever penury, in contempt of man, brought near to beast, my face I’ll grime with filth; blanket my loins; elf all my hair in knots; and with presented nakedness out-face the winds and persecutions of the sky. The country gives me proof and precedent of Bedlam beggars, who with roaring voices strike in their numb’d and mortified bare arms, pins, wooden pricks, nails, sprigs of rosemary, and with this horrible object, from low farms, poor pelting villages, sheep-cots, and mills; sometimes with lunatic bans, sometimes with prayers, enforce their charity.—Poor Turlygood; poor Tom, that’s something yet; Edgar, I nothing am.” No one can deny but that our great poet well described a lunatic when he called him something of the *basest* and the *poorest* shape.

It is very hard, in the present day, for us to believe a man feigning madness, even to save his life, when by so doing he, a sane man, is confined as a lunatic in a lunatic asylum, it is difficult to say that of two evils he chose the least, yet it may be said, “What will not a man give for his life,” though we know that there are men who would prefer to lose their lives to lose

their honor. However, it is a fact that some men do feign madness, and it is the duty of the medical man to detect such an imposture, which is sometimes a very difficult thing to do, yet it can be always done by time and perseverance. Bear in mind that no matter how extravagant may be a man's actions, even to starving himself, if he be a sane man he cannot produce physical signs, and he has in time to yield to the power of sleep. Medical men are very often taken to task, very unjustly, for the evidence they give in Courts of law, where the accused person is supposed, or known to be a criminal, particularly if it be a case of murder. Now an intelligent and experienced alienist, from long habit, and natural inference may in a moment diagnose a case of insanity so as to swear positively that the man before him is insane, yet not be able to give a satisfactory proof to a judge or to a brother practitioner, as to why he came to that conclusion. And you know, gentlemen, that it is the same in the rapid diagnosis made by some medical men in other forms of disease. You have all met with medical men who when walking through the wards of an hospital, would without any particular examination, name the disease of the different patients, and if called upon to-day, why, could give no satisfactory answer. Well, such evidence will not be admitted in a court of law.

The Toronto Globe for November 25, 1876, took some of our confreres of Ontario to task for evidence respecting the sanity of a man who had committed, it would appear, a most unjustifiable murder. Had the *Globe* stopped here it would have been no business of mine, but it went further, and endeavored to turn all medical testimony, in such cases, into ridicule, and therefore I joined issue with the editor of that paper through the columns of the *Montreal Gazette*. My letter bears date December 2nd, 1876, and as it bears on the question under our consideration, I beg leave to read an extract from it:—

“Does the editor of the *Globe* mean to say that every man's acts are not the result of his peculiar mental organization and training? Does he mean to say that men don't differ as much in their mental organization, and in their ideas of right and wrong as they do in their personal appearance? Does he mean to say that men don't differ in degree, and to a very great degree in

their intellectual capacity, which is due to their mental organization. I am sure that the editor of the *Globe* will say nothing of the sort; and if he admits, and he must do so, that there is a vast difference in men's mental organization, he is bound to admit that all men are not equally responsible for their acts, and if not equally, how much and how little? and where does responsibility begin and where does it end. I am sure that he will not say that the lunatic, imbecile or idiot, are responsible for their acts, although a great majority of them know when they are doing right and when they are doing wrong. He must know that these creatures act from impulse, being frequently the result of fear and terror. And surely these cases are fit subjects of enquiry for medical men. Surely the diseased mind belongs to the study of the medical man, as much as does the diseased body, more particularly as mind and body are one. The editor of the *Globe* must remember that science enables the medical men of the present to "administer to a mind diseased," and that it is their duty and privilege to decide when the mind is diseased, when men are responsible and when not for their acts. No man holds a higher respect for the judiciary than I do. I look upon a judge in his judicial capacity, as something sacred, something very far above the vulgar crowd, something very far above that which any medical man can ever attain to. Yet, I don't conceive a judge to be the proper person to diagnose a diseased mind, any more than he is the proper person to diagnose a diseased body, and I conceive it just as absurd to make a law defining what is insanity, as to make a law defining what is consumption. The duty of the judge is, after hearing all the evidence for and against the criminal, with regard to his mental state, to declare whether he is or is not a person responsible for his acts. And I believe in ninety-nine cases out of a hundred, he would adjudicate correctly. And for the best interests of society I hope that this power will always remain in the hands of our judges. It is very much to be regretted that this every day cry of insanity got up in the many criminal cases is bringing science into disrepute, and I fear that the result will be that many responsible criminals will get free, where those that are irresponsi-

ble will suffer from either ignorance or prejudice. I am afraid that judges and juries may possibly mistake insane cunning for intelligence, and boorish stupidity for insanity.

It is no very easy thing at all times to diagnose a case of insanity; at least that has been my experience, and I find it much easier to detect a man playing the fool, than I do to detect a man trying to conceal his insanity. The cunning of such men is something extraordinary. They will carefully watch every word they utter, and every one of their acts, that they may not be found off their guard; and very frequently it is only when by some accidental circumstance we strike the key-note of their delusion or illusion, that we find out that they are insane. Cases of this sort are to be found every day in lunatic asylums, asking for their discharge, declaring themselves perfectly well, and conducting themselves with the greatest propriety, even to render aid to keepers in case of necessity, and yet are these men what the *Globe* would call "mad as March hares," and likely to remain so all their lives. From these facts, I should be very cautious before I would go into a court and declare any criminal sane or insane, and I think when the plea of insanity comes up, for the sake of security, the best thing to do would be to send the criminal to a lunatic asylum, where he would be under the daily observation of the medical attendant, and leave it to him with time and circumstances, to find out whether the man was sane or insane."

Now gentlemen, as I wanted to say so much I thought it best to read an extract from my letter already published. You will have observed that I laid particular stress upon the fact of the difficulty that existed in diagnosing a case of insanity where the person had sufficient cunning to try and conceal it. It is this that most concerns the medical man, for he is much more frequently called upon to examine and pronounce upon the mental state of his private patients than he is to give his opinion on the mental state of criminals, and it would not do to send these cases to a lunatic asylum on mere suspicion. If the criminal is not mad but playing the fool, he is suffering the punishment due to his crime. But it is quite a different affair with a private

patient, there to make a mistake would very probably destroy the character of the medical man, as well as to expose him to an action for damages. It must be always borne in mind that husbands who have got tired of their wives, have accused them of insanity, and had them incarcerated in lunatic asylums, and that wives have done the same with their husbands. Moreover that when children have got tired of supporting their old parents they have placed them in lunatic asylums to get rid of them. These facts should never be forgotten by a medical man when he is called upon to give a certificate of insanity. My advice in these cases would be, that the medical man before seeing the case he is called upon to examine, should first get all the information possible with regard to the accused person's actions, and all their previous habits, and this information should be obtained not only from immediate friends but from neighbors; he should also have the family history, and if possible find out whether there was any hereditary taint. All the information he can obtain he should commit to writing, and examine it well before he goes to examine the patient. Of course if the case is one of a furious maniac, or a monomaniac, or a case of hysterical mania, or even melancholia, there will be but little difficulty in a diagnosis, (mind, I am speaking of a private patient not a criminal), but there is a form of insanity that I have already alluded to that is very difficult to diagnose—cases where much blame is attached to the patients by their friends, though they deserve the greatest pity; they are called persons of violent tempers, who could control their tempers if they wished; they turn very frequently to the use, or rather abuse, of stimulants, then they are called drunkards; in fact every foul epithet is applied against them, till they commit some terrible crime; then, for the first time, it dawns upon the minds of the friends that the person is mad and has been so for many years. Now it is to such a case in its early stage that I wish to draw your particular attention. I said that they are deserving of the greatest pity,—and so they are—although they use all the power and force they possess to *conceal* their insanity, not only from their friends but from themselves. These cases I call chronic mania, due to a slow, chronic inflamma-

tion of the cerebral frontal cells, which in time terminates in disorganization—cases difficult to cure even in the earliest stage, but incurable when disorganization has taken place. These are the cases where you will find the most extraordinary amount of insane cunning, so that you may possibly be deceived and rather consider them persecuted by their friends than mad. These are the cases which strangers meet in lunatic asylums, and ask why such a person is in the asylum? That he told his story very simply and truthfully to them, and they think it a great shame to have him incarcerated in a lunatic asylum. Yet, gentlemen, these insane persons are dangerous to both themselves and others, they are frequently either suicidal or homicidal. And their delusions and illusions are most extraordinary; attributing to those near and dear to them, the very acts that they are guilty of themselves. These lunatics' idea of right is exactly a sane person's idea of wrong.

Let me introduce you to such a case. You are called upon by a gentleman to go and visit his wife. He tells you he does not know what is the matter with her, that her actions are very strange; she that was the most loving wife seems now to actually hate him; she that was the most loving mother now treats her children most cruelly; she that was the neatest of women has now become slovenly, actually dirty in her habits; she that was the most saving of women in her household affairs has now become the most foolishly extravagant. You at once suggest insanity. He does not know what it is; in fact, he doesn't like to think his wife mad, though in truth he has thought so for a long time. You call in the course of the day to see Mrs. B.; you are shown into a sitting-room by a servant; Mrs. B. makes her appearance in a few minutes, as bright as possible; she is delighted to see you, and makes most particular enquiries about your health and about the health of all your family; she is most particular in apologising for being found in her dishabille, and laughs loudly that you should find *her* in such a state, *she* that is always so particular, but then doctors, you know, must not be kept waiting; so she runs on, and in a few minutes will do a fearful amount of talking about nothing. When she comes to

a stop, she watches you keenly to see what brought you there, or what you are going to say ; in fact she knows by a kind of instinct or intuition what you are there for, and wants to throw you off your guard. Then you tell her that her husband requested you to call and see her, as he was afraid she was ill. When making this announcement keep your eyes well fixed upon her, then comes the change ; she will at once assure you that, " thanks be to God," which she emphasises, that she never was better in all her life ; she can eat and sleep well ; she has nothing to trouble her conscience, whatever others may have. She thinks it was Mr. B. himself that required medical treatment, not she ; but she now understands him, he could no longer deceive her, her eyes were open. She would let Mr. B. know he was not to insult her by sending a doctor to see her when she was not sick. At this stage one of two things occurs ; she will either beg to be excused, as she has her household duties to attend to, and will leave you very abruptly, or she will feign to cry and take you into her confidence, asking you to protect her as she is a poor persecuted woman who has been deprived of all her friends by her husband. She will be most particular to bind you to the strictest secrecy not to let her husband know a word she said to you. At this stage you must talk to her very kindly, offering her no opposition, but rather agreeing with all she says, till you get her calmed down. If all her story is false, and she is a poor insane woman suffering from delusion and illusion, you will find the following symptoms : *pupils dilated*, and if not entirely fixed, very sluggish in obeying the stimulus of light, or very often irregular in shape, or one pupil more dilated than the other.

You will find the pulse hard, rapid and variable, averaging about 110 beats a minute, then take her wrists one in each hand, feel the pulse very cautiously, and you will find that the pulsation is not equal in both wrists, but that one follows the other, very rapidly certainly, but still not together.

These are the particular symptoms, gentlemen, that I wish to draw your attention to, as I am not aware that any writer on insanity has pointed out these particular symptoms in this otherwise concealed form of insanity, that is so far as physical symp-

toms are to be found. You may ask how do I account for this anomaly in the pulse? that is just the very question I wish myself to have solved, but I find it as difficult as I do to explain the anomaly of the pupils. Pathology has shown that the disease, in these cases, is in the cells of the cortical portion of the anterior portion of the cerebrum, far removed from the *optic*, or ophthalmic branch of the 5th pair of nerves. Indeed when the base of the brain is attacked we generally find the pupils contracted so small that the point of a fine needle could not pass through them. However, I can only declare to you the fact as I have found it, and console myself with the knowledge that we have many other diseases presenting certain symptoms that we cannot account for. However, I trust the time will come when pathology will throw more light upon the subject.

I wish you to understand that there are other cases of mania in which we find these very anomalies of the pupils and pulse, as well as in the form I have drawn your attention to, but then you have so many other symptoms to guide you in these cases that there is no fear of your making any mistake. For example the violence exhibited in a acute or hysterical mania. But these are the only symptoms that can guide the medical man in chronic mania, arising from irritation or organic disease of the cerebral cells in the anterior portion of the cerebrum.

As I have already stated, it is no uncommon thing to find such insane persons become drunkards, and they are called drunkards who have become insane from drink; such is by no means the case; they drink because they are already insane, and feel the want of stimulants to the brain. Such an error is a very grievous one, for it not only deprives the patients of being put under a proper course of treatment, but deprives them of the sympathy of their friends at the very time that they are the victims of a fearful disease.

I have taken a few cases at random that will be a proof to you that I have founded my remarks upon my own observations.

D. G., æt. 35, admitted December, 1876, a furious maniac. Pupils dilated and fixed; pulse 110. Dec. 5th, pulse 102. Put under treatment December 11th. Pulse 88. Pupils obey the stimulus of light.

G. M., æt. 37, admitted Dec. 4th, 1876, furious maniac. Pulse 128, the same on the 6th; put under treatment. On the 11th, pulse reduced to 100. Pupils obey the stimulus of light.

M. T., æt. 27, admitted December 4th, 1876. Furious maniac. Pupils dilated and fixed; pulse 160; put that day under treatment. On the 6th pulse 108; on the 11th pulse 80; pupils obey the stimulus of light.

I could give you fifty such cases of furious acute mania, but those three will suffice. No one could mistake these cases; no difficulty in diagnosing them. I will give you now a few cases of chronic mania, such as I have been describing to you, where the conduct of the patients *in* the asylum was most exemplary.

M. A., æt. 35, admitted Nov. 28, 1876. Pupils dilated and fixed; pulse 100, and not equal in both wrists. December 2nd pupils in same state; pulse 102, not equal. Put under treatment. December 18. pulse 80, pupils normal.

V. M., æt. 62, admitted November 28th, 1876. Pupils dilated and fixed; pulse 102, not equal. Put under treatment December 14, 1876. Pupils normal; pulse 89 and regular.

B. P., æt. 19, admitted November 28th, 1876. Pupils dilated and fixed; pulse 142, not equal. Put under treatment December 5th; pulse 148. December 18th, pulse 84; pupils normal.

M. S., æt. 37, admitted December 20th, 1876, was not put under treatment nor examined immediately. December 27th, pupils did not obey the stimulus of light; were partially dilated. Pulse 105, and not equal in both wrists. Put under treatment December 29th; pulse 109. Jan. 3rd, 1877; pulse 100; Jan. 9th, down to 90; pupils very sluggish, but in some degree obeyed the stimulus of light.

I could give you, gentlemen, numbers of such cases, but I feel that I have already occupied too much of your time, and should rather apologize to the President and the Society.

Hospital Reports.

MEDICAL AND SURGICAL CASES OCCURRING IN THE PRACTICE OF THE
MONTREAL GENERAL HOSPITAL.

Rupture of the Vagina.—Under the care of DR. ROSS.
Reported by MR. C. L. COTTON.

L. H., aged 60, was admitted to the wards of the Montreal General Hospital, November 25th, 1876, suffering with severe hæmorrhage from the vagina. She states that her catamenia stopped ten years ago; is the mother of seven children, one of whom only is living. Her husband, whom she had not seen for nine years, and who is seventy years of age, returned yesterday and insisted on having connection with her. To this she objected, but he insisting on it, she at last acceded to his wishes. It caused her a great deal of pain, and immediately after a severe hæmorrhage took place from the vagina. She lost a very large quantity of blood (as she says, it would have filled a bucket), which drenched the bedclothes and ran over the floor. In attempting to get up and walk she fainted. She was found and brought to the Hospital. Her husband had decamped. She continued to lose blood for the next twenty-four hours—both clots and fluid blood.

Vaginal Examination.—Vagina somewhat contracted and shortened; scarcely any cervix uteri. A rent about one inch long is seen just behind the cervix, in the upper part of the vagina. It does not appear to have opened into the peritoneal cavity.

She had chills and flushings all night. Ordered injections of warm water with a little carbolic acid and suppositories containing grs. ij. opium.

November 26th.—No blood lost since yesterday. Passed a good night. Complains of some pain in the back to-day. Temp. normal. Pulse, 76; full and strong. She has had no vomiting. She declares that her fæces came through the vagina; but this is very doubtful. No pain over the abdomen.

November 28th.—A slight pain in the right hip. No pain in the back. Slept well. Feels very comfortable.

November 29th.—Had a dose of ol. ricini last night, which operated very freely. Tongue clean; appetite good.

November 30th.—Left the Hospital, apparently well. No vaginal examination was made.

Reviews and Notices of Books.

Annual Report on Diseases of the Chest.—Under the direction of HORACE DOBELL, M.D., &c., &c., Consulting Physician to the Royal Hospital for Diseases of the Chest. Assisted by numerous and distinguished coadjutors in different parts of the world. Vol. II. June 1st, 1875 to June 1st, 1876.

We have just received the above work which appears punctually according to the plan proposed by Dr. Dobell. In our review last year of the first volume of this series, we took occasion to express our appreciation of the efforts of the author to reduce to convenient form all the valuable material on chest diseases which is found scattered through the medical journals of all quarters of the globe. We need not here repeat what we then said. It may only be remarked that our opinion then formed of the usefulness of the work is still further confirmed by a perusal of this second volume. In most of the compendia or retrospects of medicine which appear annually, the scope is extended over all the branches of medical, surgical, and obstetrical science, and consequently all the matter must of necessity be presented in an extremely condensed form. Here, however, it is very different. One particular section alone of medical science being worked up, it is quite possible for the writers to expatiate much more fully when they think the importance of the subject sufficiently demands it; and there is room, often, for full reports of cases which will be found of very great interest. The great benefit of these reports to any progressive practitioner is this: he meets with a case we will say of some chest disease, of a serious nature, and to which attention is constantly directed, and the modes of management of which are, under varying circum-

stances, being very frequently modified and improved upon: he desires to consult the most recent and most skilled opinions on the special subject with reference to various points in the treatment. He has only to turn to the index of Dr. Dobell's reports and he will find at once references to those parts which furnish him with exactly the information required—information which really could not have been obtained in any other way, or at any-rate, not without access to a very large library, and an almost impossible amount of research.

Of course the greater share of the volume is devoted to the report from Great Britain and Ireland, but ample room is at the same time afforded for those from all the Continental, American, and Colonial countries. It is pleasing to find that the report from our own country (which is given in a prominent place) proves to be unusually interesting. It has been compiled by Professor Osler of McGill College, and includes the reports of several cases of empyema variously treated, cases of cirrhosis of the lung, acute fibrinous bronchitis, successful tracheotomy in croup, and several others. It also publishes in extenso, from this Journal, the observations made by Dr. Osler upon the Pathology of Miner's Anthracosis.

We recommend all our readers to subscribe for this very useful annual.

The Principles of Human Physiology.—By W. B. CARPENTER, M.D., F.R.S. Edited by HENRY POWER, M.B., London. A new American from the eighth English Edition. Edited by FRANCIS J. SMITH, M.D. Large 8vo. pp. 1083.—Philadelphia: Henry C. Lea, 1876.

The last edition of this work, under the able editorship of Mr. Power, has been brought well up to the time, and we find all the most important of recent physiological facts embodied in it. As a comprehensive and trust-worthy exposition of physiology, it has stood for many years unequalled, and needs no further commendation from a reviewer.

Extracts from British and Foreign Journals.

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

A New Remedy, called Digestine.—(By A. F. SHELLY, M.D., of Philadelphia.) — This is obtained from the gizzard of the domestic fowl (chicken), and is a specific for vomiting in pregnancy. I have used this remedy for twenty-five years, and it has never failed. It is also the most powerful and reliable remedy for the cure of indigestion (dyspepsia), and sick stomach caused from debility of that organ. It is useful in all cases where the pepsines and pancreatines are used, but with much more certainty of its good results, for it puts all those preparations, in my experience, in the background.

In complicated affections of the stomach, such as inflammation, gastralgia, pyrosis, etc., it may be combined with subnitrate of bismuth and opiates; and in diarrhoea and cholera infantum, with astringents, both vegetable and mineral. I have given the article to several prominent physicians, who have used it with the happiest results, among whom I may mention Professor E. Wallace, of the Jefferson Medical College; he gives me the result of seventeen cases as follows:—

In vomiting of pregnancy, out of nine cases he cured six, and palliated two, and in one case the remedy was not taken according to direction, and therefore had no effect.

He used it in seven cases of sick stomach caused by chronic inflammation of the uterus; cured five, and two remained doubtful. He also used it in a case of very obstinate sick stomach, caused by an irreducible hernia, and says this was the only remedy that gave any relief.

We, who have some experience, all know that vomiting of pregnancy is a sore affliction, and in some cases almost unendurable, nay, indeed, putting life in jeopardy; but in digestine we have a remedy which will prove to be a great blessing to mothers, who, as yet, think vomiting must be endured as a natural consequence.

If I am able, by this publication, to induce the medical fraternity to make use of the remedy, I am positive that a great boon will be conferred upon a class of sufferers who claim our sympathy.

The dose is from five to ten grains, hardly ever more than five, except in obstinate cases. For children, from one to five grains. My mode of administering it is in a spoonful of water or tea, or it may be strewn on a piece of bread and covered over with a little butter; it is, however, nearly tasteless. In dyspepsia and in vomiting of pregnancy, I direct it to be taken half an hour or so before each meal. In other affections of the stomach and bowels, every two to four hours. I give it uncombined, except in complicated cases, as heretofore mentioned.

The methods by which this principle can be obtained from the viscus are various. When I commenced to employ it, I used it in rather a crude state, by pulverizing the lining membrane of the gizzard; but it requires too much care and precision in the drying and cleansing operation, in order not to destroy its virtues. There is also great inconvenience in obtaining the viscus during the heat of summer and extreme cold of winter, as temperature is one of the main things to be observed, in order to preserve its efficacy, purity and sweetness. Later, finding this mode of preparation unsatisfactory, and inconvenient for the above reasons, I consulted with Wm. R. Warner & Co., 1228 Market street, Philadelphia, who have prepared a form, designated digestine; its purity, and also its good effects, I can vouch for.—*Medical and Surgical Reporter*.

Giant-Cells in Syphilis.—An interesting communication on this subject is made in the *Centralblatt für die Medicinischen Wissenschaften*, No. 45, 1876. As the matter is now being discussed at the Pathological Society, we shall briefly give the substance of the communication. Dr. Paul Baumgarten, the prosector at the Pathological Institute in Königsberg, describes the presence of "giant-cells" in syphilomata. These cells have hitherto been looked upon as the

specific histological criterion of tubercle. They occur, however, in a number of other growths, but, as Dr. Baumgarten says, their presence or absence has often been invoked to decide on the syphilitic or tubercular nature of products, the microscopic characters of which were rather undecided. In one case, Dr. Baumgarten relates how a diagnosis of syphilis was almost withdrawn because of the presence of these giant-cells in a cerebral neoplasm, though the clinical history, as well as the remaining post-mortem appearances, pointed very definitely to syphilis. On another occasion, while examining a syphilitic testis in the fresh state, he found large numbers of these remarkable cells, counting as many as twelve or sixteen of them in the field of a No. 4 Hartnack's objective. In this latter case the history pointed definitely to syphilis. Urged on by these observations, Dr. Baumgarten examined other syphilitic growths, and found them almost constantly. Of course these results are of great importance, and we hope that there will be observations bearing on a point which is interesting and important to the elucidation not only of syphilis, but also of tubercle.—*Medical Times and Gazette.*

Treatment of Catarrh of the Bladder.

—Prof. Edlefsen says of late the view prevails more and more that in comparatively recent cases of catarrh of the bladder, the introduction of water or medicated fluids into it by means of the urethra is the best method of treatment. He has tried this method repeatedly and found no benefit from it in recent cases. After speaking of the excessive sensitiveness of the bladder, and the danger of introducing any substances into it—in favor of which view he quotes Hegar—he goes on to say that the treatment of the bladder had much better be conducted ~~through~~ the blood, and believes that lukewarm water injected into the bladder is injurious, and that the mechanical irritation of a catheter is most hurtful, and even if Zeissls' method of introducing fluid into the bladder, without using a catheter, be employed, that still the objection remains of the irritating

quality of the injected fluids. He is much pleased with the remarks of Dr. Carl Pauli (Prof. Dittel's assistant in Vienna), who says that one should never, unless absolutely obliged, introduce an instrument into the bladder in cystitis, and Lebert, who says the irritation produced by the instrument does more harm than the good produced by the introduced fluid. Prof. Edlefsen introduces his new remedy, which is administered internally, a remedy of which he has had large experience in the treatment of catarrh of the bladder with most favorable results, and without the production of evil results to the general system or any single organ; that if injections *must* be used, it forms the best. This remedy is chlorate of potash.

Prof. Edlefsen says that medical men are not content with the present remedies for catarrh of the bladder, and that when Schütz, Lebert and Pauli speak of the difficulty of causing long-standing catarrh of the bladder to disappear even when most properly treated, and ask why numbers of practitioners are discontented with remedies which satisfy Bartels and his school, he thinks it is due to a wrong impression of the proper remedies to be used and a timidity in using them. The most efficacious remedies (next to free water-drinking and dieting), are, according to Prof. Bartels, oil of turpentine and balsam of copaiva. Dr. Pauli and Prof. Dittel, of Vienna, say that oil of turpentine, matico, balsam of copaiva and cantharides, taken internally, cause such irritation of the kidneys, that nephritis may be produced, and that these remedies require no special notice: Prof. Edlefsen does not wonder at the poor success of Dr. Schütz in curing long-standing bladder catarrh when he says he has no experience of ol. terebinth, balsam copaiva or tannin in its treatment. That Seitz, in his last edition of Niemeyer's work, recommends these remedies to be tried, and that Felix Von Niemeyer himself, in the earlier editions, recommended them warmly for the treatment of the later stages of acute catarrh of the bladder. Kunze recommends them where tannic acid fails. Nothnagel and Husemann merely mention them in their text-books. Prof. Edlefsen says he has patients coming to him from all parts of

Germany, who have been treated by numbers of physicians, but never with copaiva or oil of turpentine ; he remarks that there are few cases of catarrh of the bladder which can resist the above-named remedies properly administered, and that the greater portion of these are incurable (tubercle or cancer), that the above remedies are not only useful in catarrh of long standing, but also in recent cases. In gonorrhœal catarrh of the bladder, he has used copaiva and turpentine with best effects.

* * * * * Normal urinc is acid, and an alkaline reaction of the urine is disadvantageous, as has been proved often ; the reëstablishment of acid urine in catarrh is a sign of a return of the bladder to its normal condition, and oil of turpentine acts very speedily in bringing about an acid reaction of the urine. It does not do this because it is acid itself, but by lessening the inflammation, perhaps by contracting the bloodvessels, as this remedy acts in the same way on other mucous membranes affected by catarrh ; so oil of turpentine causes acid urine by improving the condition of the bladder, and the acid urine thus produced still further improves the condition of the bladder. Prof. Edlefsen says that if an acid reaction of the urine is of such great importance, how is it that alkaline mineral waters used for a long time have so good an effect in catarrh of the bladder, that they act chiefly by filling and distending the bladder, and thus frequently washing it out. Dr. Pauli's objection that oil of turpentine causes nephritis has little weight when we consider the numberless cases of pneumonia, chronic bronchitis, putrid bronchitis and even catarrh of the bladder, which are daily treated by the same doses of turpentine (m x.) without producing any such ill effects as nephritis, cystitis, pyelitis hæmorrhagica, &c. Still Prof. Edlefsen admits that he has seen one case among the many hundreds treated by him where turpentine caused strangury and bloody urine—these disappeared on the stoppage of the medicine ; but he thinks there is no reason why we should not use turpentine in catarrh of the bladder, as well as in the various lung affections specified above. Cases, however, sometimes are met with which cannot be treated with balsam

of copaiva or oil of turpentine, viz. : those suffering from catarrh or ulcer of the stomach, nephritis, &c., and in these cases some other remedy must be employed to bring about the wished-for result. Prof. Edlefsen says there are certainly other well-known remedies which are not in the least dangerous, as tannic acid, uva ursi, bucco, matico, &c., and he has no doubt that these remedies, in many cases of catarrh of the bladder, have a beneficial effect, and he has seen the infusion of the leaves of uva ursi often act well in mild cases of bladder catarrh, but as a sure remedy he cannot recommend it, and thinks it causes gastric catarrh and constipation. Salicylic acid, according to Fürbringer, taken internally, checks the ammoniacal condition of the urine, but has no property of preventing the formation of pus, and the same may be said of benzoic acid, which Gosselin and Robin recommend. Dr. Edlefsen thinks that a new remedy, really acting beneficially, will be very welcome to the profession, and says he has found such a remedy in chlorate of potash. He says : " After prolonged trial, and with full conviction, I think this remedy (as I shall show) is a rational one, and never produces bad effects, is not at all dangerous, and has already been used in a number of cases with success, especially in cases where the use of turpentine has been contraindicated ; indeed I have cured cases of catarrh of the bladder by chlorate of potash in a much shorter time than by any other remedy in cases which have withstood oil of turpentine and other remedies." He goes on to say that it is well known that when chloric acid salts are taken internally they reach the bladder, and that when chlorate of potash is taken, chloric acid can be proved to exist in the bladder by well-known tests, as the indigo test. He gives the method of testing for chloric acid in detail. Prof. Edlefsen says it is well-known that chlorate of potash has a specific effect on the mucous membrane of the mouth and pharynx in catarrh, causing it quickly to disappear, and fresh shallow ulceration to heal ; he argues that if such a good effect is produced on these mucous membranes, why not on that of the bladder. * * * * * Buchheim says that in large doses

chlorate of potash has the same effect as saltpetre, causing not only an irritation of the mucous membrane of the bladder but inflammation of the bladder and bloody urine. Isambert says it causes pain and uneasiness in the region of the kidneys, in 20 gramm. doses, and lessens the amount of urine, but Prof. Edlefsen says, as many physicians can testify, he has employed it in quite as large doses where stomatitis and angina existed as in catarrh of the bladder, without there being the slightest of an unfavorable symptom, and pronounces the remedy perfectly harmless. But such large doses, he says, as Isambert uses, are not necessary in the treatment of catarrh of the bladder, and he orders usually: potass-chlor, 15.0; aquæ dest, 300.0 (3s potass chlorat to oj water) of this he gives a tablespoonful every two or three hours. He says some people object to the taste of chlorate of potash, in such cases he adds a little aqua laurocer. to the solution. He says syrups must never be added. Prof. Edlefsen first employed chlorate of potash in cases where turpentine failed or was contraindicated, and was surprised at the rapid cures effected. One case which had lasted two years, and in which turpentine did no good, after employing potass-chlor, for eight days there was hardly any sediment in the urine, and it was quite acid. On the other other hand some cases which did not improve under potass. chlor, were cured by oil of turpentine. He thinks this remedy will supply a space long vacant, and hopes practitioners will fully test it. When chlorate of potash is used, as a rule the pus in the urine rapidly diminishes, the subjective symptoms disappear, or are mitigated, and the acid reaction of the urine returns, but not so rapidly as after the employment of oil of turpentine. The employment of chlorate of potash in diseases of the bladder is not altogether new. F. W. Müller mentions this remedy as an injection for gonorrhœa in proportion of 1 part of chlorate of potash to 100 of water, and a colleague of Prof. Edlefsen's has employed it for several years in cases of gonorrhœa accompanied by stricture. Prof. Edlefsen has never used this remedy in catarrh of the bladder due to gonorrhœa, because in these cases he always uses balsam of

copaiva. In conclusion, he says he never combines narcotics with this remedy, because it always acts promptly in relieving the subjective symptoms. He advises plenty of water to be drunk whilst this remedy is being taken, and also a strict attention to diet. Then follows a series of 16 cases of catarrh of the bladder, in which the treatment has been by chlorate of potash, which want of space, unfortunately, does not permit us to give.—*Condensed from Deutsch. Archiv. f. Klin. Med. Bd. xix. Hft 1. Dec. 18, 1876.*

Diphtheria.—Schultz (*Allg. Med. Central. Zeitung. 14, 1876.*) treated two cases of scarlatina and twelve of primary diphtheria by carefully pencilling the affected spots two or three times a day, with pure salicylic acid. The application causes only moderate burning, and does not interfere with the administration of nourishment.

In addition the following mixture was used, a teaspoonful every hour: acid salicyl. 7, aq. dist. 120; mucil. gum. arab., syrup, aa—15. In ten cases the process was concluded by the fifth day. The general condition good, and the appetite had returned.

Henoch, Professor of Children's Diseases in Berlin, (*Charite-Annalen, Bd. I.*), makes the following observation on this disease:

As a cause of unexpected death during convalescence, fatty degeneration of the heart has been found in many cases. The same change has also been discovered in an early stage of the disease when death has occurred from the collapse. Microscopic examination of the heart fibre is necessary in these cases, as the colour is often retained on account of the quantity of blood in the muscles. Endocarditis, lately described by Bouchut as an almost constant complication of diphtheria, was not observed in any case.

The known fact that the so-called diphtheritic exudation only infiltrates the tissues above the vocal cords, while below it occurs as a croupous membrane, was contradicted in some cases.

In one instance a whitish-yellow infiltration of the mucous membrane was found in the lower part of the trachea and the right bronchus, which, after removal, left a loss of substance.

In two cases nephritis was noticed as a sequela.

The following case presented a peculiar pulse phenomenon in the course of the disease: A girl seven years old was admitted on the 25th of February with ang. diphtheria and commencing obstruction in the larynx. Pulse now, and then irregular. The following day tracheotomy was performed. Pulse small and irregular, 80-86 in the minute. Nourishment passed through the glottis, and escaped through the tracheal wound. From 1st to 3rd of March the following was observed in the pulse: After two rapidly following pulsations, of which the second was weaker and smaller than the first, a long pause supervened. The phenomenon was unaffected by the respiration. The two pulsations corresponded to four heart sounds, *i.e.*, two perfect heart contractions and dilatations. On the 4th the pulse was regular. On the 5th the child died. At the post mortem, nephritis and fatty degeneration of the heart were found; no abnormalities about the vagi. This phenomenon was first described by Traube, as *P. alternans*.

Diphtheritic paralysis was successfully treated by injections of strychnia.

In Neureuter's and Salmon's report of the Franz-Joseph Children's Hospital of Prague, a case of ulcer of the œsophagus from diphtheria is recorded: The girl 6 years old, was taken in with scarlatina and diphtheritic pharyngitis, death occurring on the ninth day, with symptoms of brain pressure. At the post mortem a circular loss of substance, which had hardly penetrated the muscular coat, was found in the lower third of the œsophagus. The child had died from hæmorrhage caused by the separation of the diphtheritic membrane. Neither difficulty in swallowing nor bloody stools were noticed during life.—*Jahrbücher, f. Kinderheilkunde, Bd. x. Hft. 3 and 4.*

CANADA

Medical and Surgical Journal.

MONTREAL, MARCH, 1877.

SANITARY STATISTICS.

The annual motion of the member for Grenville, Dr. Brouse, has been made before the House of Commons—"for a select committee on the subject of vital statistics and public health." On this occasion we did not observe that he specially selected the city of Montreal as an illustration of an unhealthy place, to bear out his arguments, nor did we observe that he was twitted by the Honorable the Premier (as occurred last year) "for being desirous to lay his views before the public, but that he could scarcely hope to accomplish anything by his motion." The motion was, however put and a select committee named. Dr. Brouse's views were ably seconded by the Hon. Dr. Tupper, who is reported to have said that—

"He concurred in the remarks of the member for Grenville; he held that questions of vital statistics was vested solely in the Dominion Parliament, and the provinces that took up the subject did so unconstitutionally. He referred to the times before Confederation, when the Provinces had their own statistical departments. Referring to the case of Nova Scotia, he said that till recently the Province of Nova Scotia had had its own department, but for the first time he noticed that the estimate for it had been left out this year. He blamed the late Government and the present one, for not having before this, taken action, and hoped that at once some decisive action would be taken."

"Hon. Mr. MACKENZIE believed the member for Cumberland was wrong in what he said as to the constitutionality of the matter. He was extremely anxious to do what was possible in this matter, and the Government would be glad to consider whatever the committee might suggest in regard to this important matter."

This, certainly, is a very hopeful position of the question at issue. We have before on several occasions expressed our conviction, openly in the columns of this periodical, that we believe that there existed an urgent necessity of a general law for the Dominion, an act passed by the Dominion House of Commons, as it appears to us perfectly plain, that if each province enacted a law of its own touching the subject of vital statistics, and the method of collecting them, nothing like uniformity would exist, and hence the information gathered would be unreliable. To Dr. Brouse credit is due for his continued action in connection with this subject, and we may hope for some definite results, now that the Premier has announced "that the Government would be glad to consider whatever the committee might suggest."

But although decency prevented the motion by Dr. Brouse from being shelved, as it was in reality last session, yet we fear there is not much to be expected, as the acceptance of the motion by the Premier, and his subsequent remarks thereon, are very guarded. He says the Government "would be glad to consider whatever the Committee might suggest." This is not a bold and straightforward declaration—that the Government were prepared to grapple with the question of sanitary reform, and legislate thereon for the good of the whole country, but then politicians are exceedingly wary and guarded in their utterances.

The questions involved in sanitary legislation are clearly not entirely of local interest. The great benefit to be derived by a general law for statistical enquiry is the uniformity and regularity of the reports that would be submitted, so that it would be open to every man to ascertain the healthfulness or otherwise of any locality. Furthermore the Government of the country would be in a position to point out by comparison the insalubrious parts of the country, and the causes of that want of sanitation. We hold that the Government of every country should occupy that position. But the application of the remedy should devolve on local authorities. If in any particular locality, any city or town, an insalubrious condition existed, and that it resulted in a marked augmentation of the death rate from any special form of disease, the General Government of the country

should be in a position to be able to indicate the fact; but the remedy and its application is then clearly a matter for municipal legislation.

Dr. Brouse has gone into the cost of all the sickness and death entailed on this country through neglect. These are at once curious, but, we presume, reliable statements. The Doctor states that Canada suffers an annual death rate of 100,000. This is considerably in excess of the published statements, and appears high, as it would yield an annual mortality of 25 per 1000 all over the country, computing the population at four millions. From the observations we have ourselves instituted, taking as a basis the census reports, the death rate in country parts is very considerably less than a third of this amount. But we must observe that if Dr. Brouse has made an error in his calculations, he is in every way excusable, as the material he has to work on is very meagre.

One very important point is gained, the committee is struck, and we will look with deep interest at the work it proposes to perform. We are not aware that any definite line of action has been decided on. We are unable to state whether a bill has been prepared. This we should suppose should be the initial step. It might at first be defective, but would admit of amendment and ultimately a good and useful measure might be obtained.

DEATH OF SIR WILLIAM FERGUSSON, BART., F.R.S.,

L.L.D., SERJEANT-SURGEON TO HER MAJESTY THE QUEEN.

By the English papers just received we notice the death of this distinguished surgeon, which event took place on Saturday 10th February, ult: William Fergusson was born at Preston Pans in East Lothian, on the 20th March, 1808. His father, Mr. James Fergusson, was in the excise. The subject of this notice was early in life transferred to his uncle's charge, who placed him at the High School of Edinburgh, and subsequently he entered the University. At the age of 15 years he was placed in a lawyers' office. This was in the days when

Robert Knox had so popularized the study of Anatomy, that a large number of young men in the Scottish capital had entered into that study with very great enthusiasm. Fergusson with others having attended some of Knox's lectures became fascinated, and exchanged the goose-quill for the scalpel. He was a lad of about 18 years, and after pursuing his studies, for a little over two years, he received the license of the Royal College of Surgeons of Edinburgh, and the year following the Fellowship by examination. On reference to the Medical Register it will be seen that he became a Licentiate of the College in 1828, and a Fellow in 1829. Fergusson was an apt pupil, and a favorite of the great Anatomist, Robert Knox, he soon gave evidence of manual dexterity in the dissecting room, and made himself so generally useful to his teacher that he became his assistant, or senior demonstrator to his class. He occupied that position at the time when the unfortunate events of the murderers Burke and Hare so aroused popular clamour as to force Robert Knox to leave Scotland.

Mr. Fergusson commenced in 1830 or 31 a course of special demonstrations in surgical anatomy which were highly appreciated by the students of that day. This gave him a name as a man of rising ability, who only lacked opportunity to develop his talents. He was elected Surgeon to the Edinburgh Royal Dispensary towards the end of 1831, where he had an opportunity to display his surgical skill. Shortly after his appointment he ligatured the subclavian artery, an operation that had only been performed twice previously in Scotland. He was elected Surgeon to the Royal Infirmary of Edinburgh, about the year 1835 or 36, after Liston left the Northern capital for the Metropolis, and he began to divide the surgical practice of Scotland with James Syme, already at the zenith of his career. Towards the end of the year, 1839, the professional chairs of Medicine and Surgery at King's College, London, filled by Dr. Watson, and Mr. Arnott were vacated by the resignation of those gentlemen. In consequence of the establishment of a new Hospital directly in connection with King's College, which was deemed necessary for the continued success of the School,

those gentlemen were expected by their colleagues to become officers of the new establishment, or to resign their respective chairs, as they were both attached to Middlesex Hospital. They preferred to resign their connection with King's College than to surrender their appointments at the Middlesex Hospital. This action which was steadily persisted in, although much regretted, resulted in the election of Dr. Budd to the chair of Medicine, and Mr. Fergusson to that of Surgery. This took place in the early part of the year 1840, and Mr. Fergusson resigned his appointments in Edinburgh, and removed to the English capital. Although the professorship at King's College gave him position, yet he had formidable English rivals to contend with in the persons of Robert Liston, Astley Cooper, and Benjamin Brodie, and many others. He began his career in London, without the advantages of family or other connections of high standing. In 1840 he became a member of the Royal College of Surgeons of England; and in 1844 was elected an honorary Fellow. He was appointed Surgeon in ordinary to H. R. H. Prince Albert in 1849, shortly after the death of Mr. Aston Key; in 1855 Surgeon Extraordinary to the Queen; in 1866, he was created a baronet of the United Kingdom, and the year following Serjeant Surgeon to Her Majesty on the death of Sir William Lawrence.

Sir William Fergusson was a clear and lucid writer. One of his earliest contributions on the subject of Lithotrity appeared in the *Edinburgh Medical and Surgical Journal* for October, 1838. It was copied from that journal into the columns of the *British and Foreign Medical Review*, and the editors in introducing the article remarked "This is a sensible paper, and is well deserving the attention of practical surgeons." We well remember at the outset of our professional studies the satisfaction experienced in becoming possessed of a copy of Fergusson's *System of Practical Surgery*. This work appeared towards the end of the year 1842, and has since run through six editions. Its first appearance received laudatory comment from the reviewer.

But although Sir William Fergusson was fully engaged at his

College and Hospital duties, besides conducting an extensive surgical practice, yet his industry was such that he could find time to follow up important observations, more especially in the way of conservatism in surgery, and to publish those observations. No man could wield his knife better than Fergusson, but he was fully impressed with the belief that the knife was the scandal and approbrium of his art. His common sense was such that it led him to be careful in the adoption of novelties in surgical practice; he worked for the benefit of his fellow man, and employed his surgical resources in the alleviation of suffering, at the least sacrifice of health or limb. His contributions on cleft palate were markedly original, and his suggestions were favourably received, and generally adopted by practical surgeons. His observations on excision of the shoulder and knee-joints were at once pronounced and decisive, and his views have done more than the writings of any other surgeon to lead to the adoption of those operations in suitable cases. Let any person refer to the *Lancet* for June 9th, and 16th 1864, and he will there find a masterly article from the pen of Fergusson on the subject of excision of the knee, in which he compares that operation with amputation. The argument throughout is sprightly and convincing.

After giving a general history of the first attempts on the part of surgeons to save limbs by the operation of excision, he remarks:—"Often and often had I myself felt deeply grieved to see a well-made foot totally free from disease, and a leg on which the pathologist would scarcely glance, swept away by amputation in the thigh for disease in the knee." Thus we observe how keenly he felt it to be the duty of the surgeon, as far as possible, to preserve, not to cut off limbs. And in following out this role, he exhibited patience and unwearied labour in attempts to save a limb—refraining from all operative interference until hope of saving a limb was past. Then would be seen his honest kindness and delicacy of touch, with unusual skill, in the performance of an operation. All these admirable features of a great man and a great surgeon were possessed by William Fergusson in an eminent degree, and which led to success in life and to fame and fortune, and which brought him peace at the last.