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CANADA

MEDICAL JOURNAL.

ORIGINAL COMMUNICATIONS.

On the Pathology and Treatment of Ileus. BY GEORGE PATON, M.D.:
M.R.C.S.E., &c., Bowmanville, C. W.

I. The vermicular movement of the intestines consists of a series of contractions and relaxations, extending from the stomach to the rectum. In contraction an active force is exerted by the muscular fibre, but in relaxation, this power ceases, and the fibres return to their previous condition. There are no facts, says Muller, to justify the supposition, that muscles possess the power of actual expansion. Bichat thought that this power was possessed by the heart in the act of dilatation, and Cruveilhier appears to entertain the same opinion, considering that the force and rapidity with which the heart dilates, entitle it to the character of an active movement.

It must however be considered a general law in the animal economy, that when we witness over-distention of muscular fibre, the muscle has existed in a passive state, and been acted on by an exterior agency. This is particularly seen in over-distension of the bladder from the retention of urine—the accumulated fluid exerting a pressure against the parietes of the viscus, and stretching the muscular fibre. The same effect is observed in the great dilatation of the stomach or intestines of cattle, which have taken food, that generates a large amount of gas; for this gas, confined within the cavity, distends its walls and greatly enlarges its dimensions. The paunch of ruminants is so constructed, that the food which has been swallowed, must be returned to the mouth from the first and second stomachs, to undergo the process of mastication; which being completed and the morsel again swallowed, it enters the third, but not the first and second stomachs. When the paunch then becomes distended with food or air, its longitudinal fibres are stretched, and the walls or sides of the œsophageal canal brought into close apposition, rendering the cavity a shut sac; in consequence of

which it often becomes enormously enlarged before an exit can be given to the gas. Relief may be afforded by perforating the stomach through the walls of the abdomen, or by the introduction of an instrument along the œsophagus to allow the escape of the gas. When these means are not adopted, the stomach often ruptures by the great distention which it sustains. And this may take place before inflammation commences.

Similar effects are produced in the stomach and intestines of the horse, during an attack of what is termed flatulent colic. When the animal has taken food difficult of digestion, or that gives rise to fermentation, an extrication of gas commences distending the stomach and intestines, and producing an attack of ileus in its severest form. And if the fermentation of the gas be not arrested, or if the gas be not speedily removed from the distended bowel, the most serious effects are produced. In a post mortem examination which I lately made, the animal dying after four hours' illness, the stomach had ruptured from the great distention to which it was subjected, and its contents pressing on the pyloric orifice, prevented the further escape of the gas from the bowels. The whole of the intestines, from the stomach to the rectum, were greatly distended with gas, and no contraction could be discovered in any part of the tube. Digestion seemed to have been arrested in the stomach, as scarcely any chyme was found in the duodenum which was filled with air, the cœcum was also enormously distended with gas, but contained a small quantity of water; no appearance of inflammation could be detected in any part of the intestines, but they everywhere maintained their natural hue, except a slight blush of redness along the lower curvature of the cœcum, where the blood vessels enter the bowel.

As no flatus could be expelled, nor evacuation of the bowels obtained, during the attack of the disease, it appears that the extrication of gas in large quantities distended the bowel and deranged its action, and that on the gas continuing to be generated, whilst the bowels ceased to perform their function, the walls of the stomach gave way under the great distention to which it was subjected.

That this is the case appears from the fact, that no trace of inflammation could be detected in the ruptured coats of the stomach, when examined with the greatest care; and that in other cases when the disease has not proceeded far, if medicine be administered which promotes the absorption of the gas, the animal often speedily recovers, whilst in some cases relief has been obtained by perforating the cœcum through the walls of the abdomen, to allow the escape of the gas.

Hence it appears that when the muscular tissue of the intestinal canal is subjected to strong and sudden distention, and the force continued

for a considerable time without relaxation being obtained, the contractility of the part becomes weakened and impaired, or even paralysed. This is the way in which loss of muscular power is produced in the intestines in cases of ileus. And the more rapidly the bowel is distended, the greater is the effect produced, and the sooner the muscular power is destroyed.

II. But ileus may be produced in a different manner, and proceed to a fatal termination, which is distinctly recognized in the horse on post mortem examination. A portion of intestine is found greatly contracted, —reduced to a very small calibre,—frequently not exceeding five or six inches in extent, but sometimes more, and often occurring in several parts of the bowels, completely obstructing the descent of faecal matters along the tube, and the gas that has been generated. That this contracted portion is the original source of the disease, appears from the fact that its diameter is much smaller than is ever met with in the natural state of the bowels —sometimes resembling a cord, and totally impervious to air or water being forced along it.

The disease is liable to be produced in horses by drinking large quantities of cold water when they are heated, or by eating some acrid herbs in the pasture, which irritates the mucous membrane of the bowels, and produces strong reflex or spasmodic action of the part. The attack commences suddenly, and the excited but irregular peristaltic action that ensues, and proceeds along the tube, making repeated efforts to overcome the obstruction, causes the most intense suffering to the animal, and sometimes terminates in intus-susceptio, the contracted part passing into the portion of the bowel situated above or below it. The case may proceed rapidly to a fatal termination before inflammation has commenced, or proceeded far; showing that it was the irregular and obstructed action of the bowels, that produced death. In these forms of ileus, the other parts of the intestines are not so much inflated as in flatulent colic, but the distention is produced in the same manner, the confined gas exerting a pressure against the muscular fibre of the bowels, and enlarging the area and diameter of the gut.

In other cases, in addition to these appearances, we find distinct evidence of inflammation having attacked the muscular tissue of the bowels, as manifested by a blush of redness—dark and livid marks—or by the parts passing into gangrene. The bowel is easily torn, and gives way on being handled. We have seen the parts so softened by disease, that on reflecting the walls of the abdomen, the bowels ruptured, allowing the gas and liquid faeces to escape with great force from the intestines, and in these cases, the disease had not been of long standing, the attack being severe, and proceeding rapidly to a fatal termination.

III. We know from experiments on living animals that when a chemical or mechanical stimulus is applied to a point of the intestinal canal, it is succeeded by strong contractions of the part, which continue for some time after the stimulus has been removed. (Muller), and strong spasmodic action of the urethra occurs from irritation of its mucous membrane, giving rise to suppression of urine—paralysis of the bladder from over-distention of its muscular fibres. On the same principle, irritation applied to the mucous membrane of the bowels, by an acid, or indigestible substance passing along the canal, produces strong reflex or spasmodic action of the part. In this manner we are able to account for the different portions of intestine found in a state of great contraction, in the horse after fatal cases of ileus; whilst the other portions of the intestines are distended with flatus or accumulated feces from the strong peristaltic action pressing forward the contents of the canal, against the obstruction that existed.

IV. Inflammation is not the cause of the dilatation of the intestine that occurs in ileus, for we have seen that the disease may proceed to a fatal termination before inflammation has commenced. Besides, when inflammation attacks muscular fibre, it produces softening and loss of power; the parts easily giving way under pressure or traction—effects diametrically opposed to those of active expansion. “Let the student examine inflamed muscle; he will find the structure weakened, so that it easily gives way under pressure and traction, he will see under the microscope, that the substance tends to fall into irregular fragments, and the natural striation is more or less replaced, first, by an almost homogeneous appearance, and afterwards by an appearance of aggregated granules.”* Now, although there is a difference between the striæ of the muscular fibres of animal and of organic life, yet these observations sufficiently show, that when the muscular tissue of the intestinal canal becomes the seat of inflammation, whatever may be the extent of its progress, the bowel possesses no inherent power to dilate and enlarge its calibre; but on the contrary becomes softened, and liable to break up on little force applied to it.

From these preliminary observations then, it appears, that whatever produces loss of muscular power in the intestinal canal, and arrests the descent of matters along it, is the cause of ileus, and there are two forms under which it appears, distinctly recognised on post mortem examination. 1st. When a large amount of gas is generated, and accumulates within the cavity of the bowels, producing over-distention of the muscular fibre and

irregular peristaltic action; a complete obstruction takes place, which neither strong purgative medicine, nor the employment of enemata can overcome, and no remedy can prove effectual except it prevents the formation of the gas, or procures its removal, when, if the distention has not been carried too far, the bowels may gradually regain their tone, and recovery be effected. 2nd. A portion of intestine is strongly contracted—reduced to a very small calibre, preventing the farther descent of matters along the gut, and if remedies are not adopted to subdue the morbid action of the part, the disease is rendered still more complicated, by the distention of other portions of the bowels, and the constantly recurring spasmodic action, and death is the result.

But in both of these forms, inflammation may supervene, at an early period of the disease, attacking the muscular tissue of the bowels, and accelerate the fatal event.

Under the last category we may include stricture of the gut—of not unfrequent occurrence. The diameter of the bowel is diminished at a particular point, interfering with the free descent of the matters along the canal, and the part affected goes on contracting till it may be so small as “scarcely to admit of the passage of a quill.” On examination of the parts after death, the intestine immediately above the structure is found greatly distended, and sometimes gangrenous.

When inflammation commences early and with much severity during an attack of ileus, it may not only involve the muscular tissue, but extend to the peritoneum, and by the effusion of lymph, produce great agglutination of the bowels.

These preliminary observations will enable us more clearly to understand the nature and pathology of ileus as it occurs in man.

Ileus commences with severe pain and twisting in a part of the bowels, generally about the umbilicus, sometimes it extends across the abdomen, and occurs in paroxysms. There is obstinate constipation, and the patient feels sick and inclined to vomit. Pressure over the part does not increase the pain as in acute peritonitis. The pulse as first is not much affected, but afterwards may become small and frequent. If relief is not obtained vomiting commences, and may return at intervals, till stercoraceous matters are ejected from the stomach; the bowels remaining completely obstructed. The abdomen becomes swollen, hard, and tympanitic—great prostration ensues, and the patient succumbs under the disease.

A circumstance worthy of observation, is that in ileus, the severity of the pain does not depend on the mere constipation of the bowels, for during the interval of the paroxysms the patient remains comparatively

easy. But when the strong peristaltic action returns, the flatus which had been generated, on being arrested in its descent distends the walls of the intestine—stretches the muscular fibre, and then the pain amounts almost to tormina. At this moment, coils of intestine may often be distinctly felt rising through the parietes of the abdomen. And the first relief is obtained when the smallest quantity of flatus is permitted to overcome the cause of obstruction, and finds an exit from the bowels.

Ileus bears a great resemblance to hernia as regards the pain, sickness, vomiting, and obstinate constipation of the bowels; and the post mortem appearances are often not dissimilar. There may be contraction of a part of the intestine, with dilatation of the portion immediately above, on which marks of inflammation in various stages of its progress may be observed. But in other cases of ileus, post mortem examination reveals appearances entirely different. There may be no contraction discovered in any portion of the intestine, but a great and general distension existing throughout the whole. Under what circumstances, then, it has been asked, does ileus occur, and what constitutes the nature of the disease?

I. In ileus there is a class of cases where a great and general distension of the intestines exists, and no contraction can be discovered in any part of the tube. It appears that gas has been generated to a large amount within the cavity of the bowel, and in passing along the convolutions over distends the part, weakening and impairing its functions, and when inflammation sets in attacking the muscular tissues, its contractile power becomes still more affected, and death is the result. This is the manner in which ileus is produced, and proves fatal in those animals to which we have referred, where a large amount of gas is generated in the stomach or intestines, and no contraction at any part of the canal can be discovered after death, and the same principle undoubtedly obtains, and the same cause operates in man. As post mortem examination reveals similar appearances, some of these cases are recorded by Dr. Abercrombie in his work on diseases of the bowels. In case LVIII a man aged forty, he says, "I saw the patient on the morning of the third day of the disease. He was then extremely exhausted; perspiration standing in drops on his forehead; extremities cold; pulse 160 and feeble; abdomen much distended and tympanitic; it was somewhat pained when pressed, but not acutely tender; some vomiting continued; bowels moved several times; stools dark, watery and scanty; every attempt was made to rally him without effect; he died early in the afternoon."

"INSPECTION.—The whole tract of the bowels, to the very extremity of the rectum, presented one continued state of great tympanitic disten-

tion, in some places they were tinged of a deep red color ; in others of a livid or leaden color, but without any change in their structure."

He informs us in case LX, " that a man aged sixty, while perspiring profusely, drank two quarts of cold beer ; and during the following night he was attacked with severe pain and sudden distention of the abdomen, accompanied with a loud noise in the right hypochondriac region. On the next day the symptoms continued unabated, with the addition of vomiting, and various purgative medicines were given without effect, being almost immediately rejected. On the third day an enema produced several copious bloody stools. It was repeated on the 4th when it brought off only blood without any appearance of feculent matter. On the 5th no relief—on the 6th day of the disease, his strength was still more exhausted, without any change in his other symptoms, and he died early in the evening.

" INSPECTION.—The small intestines were much distended and were filled with a fluid of a yellow color, similar to that which had been vomited. They were externally much injected with some adhesions. In their substance they were easily torn, giving way even when gently handled. The lower end of the ileum and the caput coli were of a deep red or of a port wine color. The great intestines contained chiefly gas, and a small quantity of fluid feces, and no appearance was discovered of any contraction or obstruction, except what arose from a slight narrowing of the ileum near the ileo-colic valve. At this place there existed an ulcer which extended quite round the circumference of its inner surface, and was about an inch in breadth. It had gangrenous edges and the bottom of it seemed to be bounded only by the peritoneum, the mucous and muscular coats being destroyed. The man had enjoyed perfect health up to the period of the attack."

These cases distinctly prove, that in ileus we may have great and general distention of the bowels, accompanied with inflammation of particular portions, proceeding to a fatal termination, without the existence of contraction.

And if the principles enunciated in the preceding pages of this paper be correct, the great distension was produced by the gas confined within the cavity of the bowels. 1st, If the gas had been expelled from the bowels with as great rapidity as it was formed, distention could not have taken place. 2nd. It was the over distention that weakened and impaired the muscular power, rendering the bowels incapable of performing their function. 3rd. This was still more increased by the inflammation attacking portions of the tube. 4th. Inflammation was not the cause of the distention, but commenced after it, for inflammation produces soften-

ing of the muscular tissue, rendering the part friable and liable to give way by slight force applied to it.

II. In another class of cases of ileus, a physical obstruction exists at some point of the intestinal canal, interfering with the free descent of the matters, as in stricture of the bowel—*intus-susceptio* or pressure of a tumour on a portion of the intestine, diminishing its area. Under all these circumstances we not merely find the diameter of the bowel contracted at the seat of obstruction, but the superior portion greatly distended. It seems to be a law in the animal economy, that when an obstacle is formed in any part of the intestinal canal, faecal matters are not only arrested in their course, but gas is generated to a greater or less amount in that part of the tube. This takes place even in newly-born infants, when a congenital obstacle exists to the ejection of matters from the bowel as an imperforate anus.* When the obstruction is of recent occurrence, and great, that is to say diminishing the diameter much at a particular point, the distention of the part above is rapidly produced, and its contractility speedily affected. But when the obstruction is partial and the more severe attacks occur occasionally, it is surprising to what extent the dilatation of the bowel may proceed before its muscular energy is lost, or inflammation sets in, and we often observe a relative connection between the great dilatation that exists above, and the smallness to which the stricture is reduced, before the functions of the intestines are completely destroyed. A case is mentioned of a patient aged forty-one years, who for eighteen months had been liable to obstruction of the bowels, with great distension of the abdomen. A constriction of the intestine was ascertained to exist about eight inches up the rectum, and to be relieved chiefly by passing bougies, which gave vent to a large accumulation of gas; during a more severe attack than usual, this remedy also failed to give relief. The smallest sized flexible catheter could not be made to pass the point of obstruction—*anodynes* had no effect in mitigating his sufferings, and he sank under the disease. The abdomen after death measured more than five feet in circumference. On a post mortem inspection of the parts, whilst reflecting the walls of the abdomen, the incision having reached about half an inch above the umbilicus, there was a sudden explosive report, accompanied with the expulsion of feculent matter and gas, and an immediate subsidence of the whole abdomen to about half its original dimensions. The colon which was out of place, had been enormously distended, and was found to have given way on losing the support of the abdominal parietes, after which it measured eighteen inches.

* Dublin Quarterly Journal of Medical Science, No. 67, page 205.

in circumference at its widest point, and in no place less than fifteen inches. The small intestines were also greatly enlarged, but remained *in situ*. The intestines appeared universally softened, being easily torn when handled, and giving way with the least force applied. A stricture of a scirrhus nature was found situated in the rectum, about eight inches above the anus, at which point the intestine was reduced to an inch and a half in circumference, and the tube itself was narrowed nearly to the diameter of a quill.*

In this case it will be observed that the intestines continued to perform their function though imperfectly till a short period before death, as the patient on being relieved each time that the more severe attack of obstruction occurred, continued to enjoy tolerable health during the intervals. And we cannot suppose that at this early period of the disease, inflammation had attacked the muscular tissue of the bowels, but that it was the over distention of the intestine with the accumulated gas, from which he chiefly suffered, and that during the last attack in addition to the great dilatation of the bowels, inflammation set in producing softening of the tissue, and the patient sunk under the disease.

Many cases of a similar nature may be adduced. We have seen somewhere a portion of the bowel, on being surrounded by tumour, become so reduced in diameter, that on post mortem inspection it would scarcely admit the point of the little finger. The patient had suffered from repeated attacks of obstruction, occurring at considerable intervals, and at last on a more severe attack, sunk under the disease. In all these cases, there is great distension of the bowel immediately above the strictured part, which condition accelerated the fatal result; and still more if accompanied by inflammation.

III. There is a class of cases where the patient dies with all the symptoms of ileus, as nausea, vomiting, severe pain of the bowels, occurring in paroxysms, obstinate constipation and tympanitic distension of the abdomen—and on inspection after death we find a portion of intestine much distended with gas, and exhibiting marks of inflammation, but immediately below this point the tube remaining partially patescent, and yet neither the flatus nor liquid feces had descended along it. From which it has been supposed by some pathologists, that the dilatation was produced independently of any obstruction in the passage. But in strangulated hernia, when the omentum alone is contained in the sac, similar effects are witnessed; † the pressure or strain which the gut then sustains

* North American Medico-Chirurgical Review, March 1859, p. 309.

† Syme's Surgery, page 415.

and the perverted peristaltic action that ensues, form a complete obstacle to the descent of gas and feculent matters—act exactly like a physical obstruction. And in these cases of ileus an analogous condition of the gut obtains. A strong band of lymph may be stretched across the bowel—or the intestine may be bound to the contiguous parts by strong bands of lymph restraining its action—or there may be a twisting of a portion of the bowel upon itself. Under these circumstances, when great irritation arises in the mucous membrane of the part from acidity or other causes, strong reflex or spasmodic action is excited, and the tube is rendered impervious to the descent of matters, or of gas; and ultimately the function of the bowels destroyed. Several cases of this kind are mentioned by Dr. Abercrombie—where the patient died with all the symptoms of obstruction of the bowels, and on post mortem inspection a portion of the intestines was found much distended with gas and feculent matters; but immediately below this the tube remaining partially patenscent. But in all these cases there had been effusion of lymph producing agglutination of the parts, or otherwise restraining the action of the bowel, and when irritation was excited, the strain or pressure put upon this portion of the tube, produced complete occlusion—acted like a physical obstruction. And every practical physician must know, in this condition of the viscera, how easily irritation is excited, and obstruction of the bowels produced. We lately visited a patient aged thirty-six, who has been for several years affected with what appears constriction of the bowel,—is liable to severe griping pains, and flatulent distention of the abdomen—bowels generally constipated—stools hard, scybalous and scanty—and when a fuller evacuation is obtained, the diameter always smaller than natural. On this occasion he complained of severe pain situated a little below and to the left of the umbilicus, which occurred in paroxysms, drawing him together, as he termed it. Pressure continued over the part slightly increased the pain. His bowels had remained obstinately shut for three days—abdomen considerably distended, and flatus could not pass. We ordered antacids with slight antispasmodics, and the employment of enemas. And in a few hours his symptoms were relieved, the flatulent distention of the abdomen had diminished—flatus passed along the bowel, and during the night an evacuation was obtained. We mention this case to shew, that though the gut may remain considerably patenscent, yet how easily irritation is excited, and obstruction of the bowel produced—the patient being liable to these attacks.

We are well aware that cases have occurred where an artificial opening having been made into the gut, above the point of obstruction, to allow the escape of the fecal matters, no relief was afforded to the patient,

as the contents of the bowel did not descend. But the reason obviously is, that that portion of the gut had lost its contractility from over-distention. For in other cases of artificial ileus, the functions of the bowels have been restored, and the patient's life prolonged.

To be continued.

Paraplegia from Traumatic Myelitis. Reported by W. WOOD SQUIRE, A.M., M.D., C.M., Montreal.

John Lynch, æt. 32, a Celt, was admitted into the Montreal General Hospital, December 31st, 1862; under the care of Dr. McCallum. Patient is a laborer, strongly built, of healthy stock, good habits, and has never been seriously ill.

On Dec. 31st, 1862, he was working in the main tunnel, McGill street, Montreal, when an immense hoisting derrick, weighing, probably, over 1000 pounds, fell upon his back as he was stooping over his spade, crushing him to the earth. He became at once unconscious, and in that state was brought to hospital. On examination, Dr. McCallum found a fracture, with dislocation of the eleventh and twelfth dorsal vertebræ. The eleventh was depressed about an inch, and the twelfth was very prominent,—apparently forced out of its bed. When consciousness returned, complete anæsthesia and loss of motion were discovered in both legs, with paralysis of the bladder and rectum, and excruciating pains in the thighs. The dislocation was reduced without any obvious deformity, and splints were applied on each side of the vertebral column, when the agonising pain was quite relieved, and the anæsthesia to a great extent removed. The bladder was washed out every second day for three weeks, his bowels were kept open by gentle laxatives, and he was ordered to have the following: Infusion Uvæ Ursi, ζ iss. Bicarbonate of Soda, gr. x, three times a day. In Feb., 1863, he came under the care of Dr. Craik. His regimen, at first antiphlogistic, had gradually become supporting and tonic. The bed-sores, which now began to form, were treated with air-cushions and pillows, the hydrostatic bed, soap plaster, and oxide of zinc. On March 5th he was seized with intercurrent erysipelas, cured rapidly by salines and tincture of iron. Stimulating applications to the spine, and the internal exhibition of citrate of iron and strychnia, were attended with marked benefit. Under Dr. Fraser, who took charge of the case in May, 1863, the same general plan of treatment was pursued until June, when the patient began to suffer from occasional rigor. Both legs were now much wasted, *the right most;*

the nates were much flattened, and there was retraction of the abdominal walls, which took a less active part in forcible expiration than natural. There was pain on pressure in the mesial line, from the navel to the symphysis, due to cystitis. A feeling of ligation was experienced around the body at the umbilicus; numbness, tingling, and formication in both legs; complete anæsthesia in the right leg, and partial anæsthesia in the left. Sensation was most rapidly restored in the left leg. Lynch failed to detect two points at the utmost limits of the æsthiometer, in the peroneal region of the right leg. The left foot is much inverted, looking like a case of talipes varus, from contraction of the tibiales ant. and post., and the long flexor of the toes. The pulse in the left popliteal artery is 100: the same in the right, *but weaker*. Temperature of the left popliteal space = 97° ; of the right, = 95° : radial pulse = 92: lungs and heart sound: general functions healthy: expectant of life.

Urine. The urine of twenty-four hours is about 29 oz., highly alkaline, sp. gr. 1018, dark brown color, muddy, strongly ammoniacal, becoming rapidly fetid. It is full of ropy mucus, and contains a notable excess of urea, urates tinged with uro-erythrine, amorphous and triple phosphates. In August, the patient passed two phosphatic calculi each the size of a large pea, preceded by symptoms of renal irritation.

In September the patient began to fail: obstinate diarrhœa set in which defied treatment for three weeks, and was followed by constipation as rebellious. Rigors recurred at intervals of four days, with rapid and *intermittent* œdema of the right leg. 4 ozs. of port wine and two eggs to be added to his daily diet. On the night of Oct. 2nd, a sharp pain was felt in the left side and over the base of the heart, with great præcordial oppression, and a slight grazing sound. Oct. 5th. A true friction sound was distinctly heard at the margin of the mammary and axillary regions, and percussion showed limited dulness in the left infra-axillary. Pain and œdema of the legs have quite disappeared. Arrow-root and a pint of beer added to his diet table. Patient was placed at once on appropriate treatment, but without any apparent benefit. Oct. 12. He complained of hearing a ticking like a clock in his chest; and a metallic, splashing sound was heard, even at some distance from the bed, on every motion of the heart, as if it were laboring in a dense fluid. Percussion and auscultation shewed considerable displacement of the heart to the right. In the upper part of the left mammary region I heard amphoric breathing and metallic tinkling; and tubular breathing all over the left posterior wall of the chest when the patient leaned forward. When he sat up the fluid gravitated, and there was dulness below. In the left mammary the percussion note was amphoric, and dull

in the left axillary when he was on his back; but on changing his position to the right side, the note became tympanitic. With the dorsal decubitus, ægophony could be heard in the left axillary. Succussion shewed a distinct splash. No cough or expectoration attended the empyema. The left intercostal spaces were on a level with the ribs; and on Oct. 13th they bulged considerably.

Oct. 14th. *Sectio cadaveris*, eight hours after death. By the courteous permission of Dr. Wright I made an autopsy.

The body was warm, though kept in a cold room. The gluteal region and the legs were very much wasted.

Head. Noticed some very large pacchionian bodies, one of which had produced very considerable absorption of the skull. Slight injection of dura mater over anterior portion of longitudinal sinus. Rest of the membranes healthy. Brain quite normal. About 3ss. of fluid was found in each lateral ventricle: other ventricles healthy: choroid plexus studded with hydatids.

Thorax. Pleura strongly adherent both to left lung and ribs. Many recent trabeculæ were seen. Several fibrous growths of late origin hung loosely in the pericardium. An immense cavity, large enough to hold an orange, was found in the upper lobe of the left lung, communicating with the pleura and with several of the larger bronchi. On passing a catheter through the trachea, and steadily inflating the lung, the peculiar sound was elicited, of air passing through a dense fluid. About six pints of very offensive fluid, like pea-soup in color and consistency, and with curdy flakes of lymph floating freely in it, were taken from the left pleural cavity. The greater portion of the upper lobe of the left lung was covered with a thick lymphic exudation. It was partially collapsed about the apex, like an atelectased lung, and showed puckering at the lower margin. In general, it was crepitant, but around the cavity it was very dense and impervious to air.

The right lung was crepitant all over, and floated in water. Both lungs betrayed the presence of some suspicious carbonaceous spots. They were placed under the microscope, which discovered only pigment granules, without a trace of tubercular origin. The pericardium, too, was full of fluid; and the heart, which was unusually small but healthy, was thrown quite under the sternum, encroaching on the right lung.

Spinal cord. On exposing the spinal cavity, the pia mater was seen to be much injected through its whole length. In other respects, the cord, with its meninges, and the thecæ vertebrales, *above the eleventh dorsal*, seemed normal; but, at the seat of injury, the membranes were strongly adherent to the cord and to the canal. There was also a quan-

tity of serous fluid prisoned about the cord at the point of fracture; and evidence was afforded of an old lymphic exudation which had been partially absorbed. The posterior roots were softer and more easily torn than the anterior roots. The posterior wall of the long canal at the eleventh dorsal was fractured; and a ridge of exostosis was found there which must have pressed upon and irritated the cord. The cord was thrown over to the right, and an abrupt lateral curvature was formed at that point. The anterior wall of the canal shewed tilting of the vertebræ forward on their opposed surfaces, producing a palpable prominence; this, with a similar condition of the left wall, must have caused great pressure.

Microscopic examination. There was no evidence of softening to the touch or the eye; nor was any flocculent appearance produced by a fine stream of water falling upon the cord from a height. A section from the site of injury was placed under the microscope, when I saw a few fragments of nerve-tubes,—straight and varicose tubuli crammed with granular matter,—and one well-marked fragment where the double line and the white substance of Schwann were distinctly seen. Quantities of nerve cells, granules, and granule cells, were under view, with several oil globules of high refractive power. Nothing abnormal was detected in the rest of the cord.

Case of Puerperal Convulsions occurring during labor recovery. By
EDWARD H. TRENHOLME, M.D.

At 4 a.m., on the morning of the 12th September, I was called to see a Mrs. H., of this city, in her first confinement. About three weeks before this time, as she was passing across a street after dark, she was suddenly grasped round the waist by an unobserved person, in time to prevent her from falling into a deep ditch. She was much agitated by this double fright, although no bad symptoms resulted from it, nor yet in consequence of a fall down several steps of a stairs a week later.

She is a healthy, well-developed woman, and with unexceptional family history. The woman had been in labor twelve hours, but the pains had been slight and unfrequent; and within the last hour she had had three attacks of convulsions, from the last of which she was just recovering on my entering the room. At five o'clock she had another fit, when I bled her to the extent of twenty ounces, and gave her twelve grains of calomel. After this the pains returned, and before six o'clock, when she had another fit, I had assisted nature in dilating the os from the size of an English shilling to that of a halfpenny. Between six and seven o'clock I succeeded in dilating the os to a size sufficiently large to

admit three fingers of my left-hand. At seven o'clock she had another attack, and as I deemed the space sufficient to allow of the successful introduction of the forceps, I applied them with little difficulty, but could not effect the delivery then without danger to the soft parts of the mother, as I had no assistant to administer chloroform, and those in the house were not able to prevent her from violently tossing about the bed. I therefore removed the instruments, after which she was quiet and had little snatches of sleep up to half-past one, when she had another fit. At two o'clock she had another attack, when, at the request of her husband, Dr. Hingston was sent for to meet me in consultation. After we had talked the matter over, it was decided that immediate instrumental delivery promised the most hopeful issue.

At half-past two, while recovering from another fit, and partly unconscious from the mingled effect of the convulsions and chloroform administered by Dr. H., I once more applied the forceps, and delivered her of a full grown child after some difficulty, as the os had not dilated since morning.

After the birth of the child, as the patient was much exhausted and disposed to lie quiet, she was allowed to remain undisturbed, with the placenta unremoved, till a quarter to four, when, upon the supervention of the after-pains, she had another attack. Deeming the retention of the placenta the last exciting cause of the convulsions, I effected its removal at once with but little difficulty. After this she had no more fits. During the greater part of the afternoon she was kept partially under the influence of chloroform.

In the evening the medicine operated freely; had also passed a quantity of urine without difficulty. As she was much exhausted, she was ordered beef-tea and wine in small quantities.

On the 13th found her very weak; pulse 140; general surface cool. Says she feels bruised all over. Ordered her brandy and water, also bottles of hot water to arm-pits and feet. During the afternoon she rallied, and when I saw her in the evening there was a good deal of fever present. Surface hot and dry; tongue slightly furred; pulse 150. Complains of great abdominal pains, especially over the uterus. Ordered hot turpentine epithems to abdomen till pain is relieved, and then to apply cotton wool and flannel; also to have a grain and a half of opium every six hours. Lochia flowing freely.

14th. A little easier. No special pains over the abdomen on pressure. Fever high; countenance anxious and sallow; pulse 160. Ordered the breasts to be well emptied, and the following prescription instead of the last: Muriate of morphia, three-quarters of a grain every six hours;

also tincture of aconite (Fleming's) two minims every two hours. Lochia unabated.

15th. Much better this morning, and took some tea and toast with relish. Bowels and bladder act freely; pulse 130; lochia natural. In the evening not so well; very drowsy; respirations low, labored, and sighing, twelve to the minute; pulse 120; morphia discontinued.

16th and 17th. Improving. Pulse 120.

18th. Not so well. Great abdominal pain and slight meteorism; bowels very relaxed. Ordered the hot turpentine epithems to be repeated, and the following mixture: Sulphate of zinc, ten grains; dilute sulphuric acid, one drachm; solution muriate of morphia, a drachm and a half; water, three ounces. Two teaspoonfuls of this every six hours.

19th. Much improved, and since then has gradually recovered, so that by the end of the month,—not two weeks from her confinement,—she was able to walk about her room.

Remarks.—As the urine was not tested, I cannot say positively that uræmic contamination of the blood was not present, although the swelled feet, &c., which usually accompany such a condition, were absent. But I would submit whether the nervous shocks she had received may not probably have caused such a change in the condition of the reflex nerve centres, as to render them sufficiently sensitive to the exciting cause, to induce the convulsions, apart from any blood contamination or venous congestion.

The exciting cause of the convulsions in this case was evidently due to the irritation produced by the uterine efforts to dilate an unyielding os; as the fits were not present during the quiescent state of the uterus, and were not permanently relieved till its entire contents were expelled.

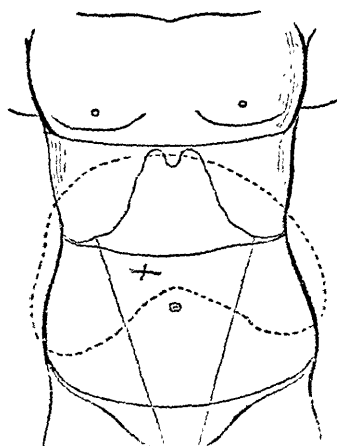
In such cases as the above, the most hopeful and successful course to pursue is to effect delivery as soon as possible; and that this can be done when the os is but partially dilated is demonstrated by this case where the extent of dilatation was barely sufficient to admit the blades of the forceps.

HOSPITAL REPORTS.

Montreal General Hospital. Case of Melanotic Cancer, under the care of W. E. SCOTT, M.D., Prof. Anatomy, McGill College. Reported by Mr. M. R. MEIGS.

Julia Leonard, aged forty, was admitted into Montreal General Hospital, Sept. 5th, 1864, under the care of Dr. Scott. She has a tumor

projecting from the epigastric region, extending on either into the hypochondriac. It has a firm, hard feel, and presents a knotted surface, with



quite a large sulcus a few inches above and to the right of the navel. Its margin can be distinctly traced, extending from the lower part of right lumbar region obliquely upwards to a point one inch above the umbilicus; thence downwards to lower part of left lumbar region. The abdomen is greatly distended, measuring thirty-six inches in its greatest circumference. There is dulness on percussion over the whole of the upper part of the abdomen, extending as far back as the vertebral column; in the lower part there is evident fluctuation. There is a slight

Dotted line showing limits of tumor. cough but no dyspnoea. She sleeps ill, and is greatly emaciated; complains of great weakness, and has considerable œdema of the lower extremities. Pulse 108, weak and regular; respiration easy and regular; percussion elicits dulness over the anterior portion of the lower half of both lungs: and auscultation elicits mucocrepitant râles in the same region. The intercostal spaces are much contracted from the upward pressure of the tumor. The complexion is sallow, but conjunctiva clear. The tongue is covered by a dirty, white fur, deepening at the centre to a yellowish brown. There is great thirst and little appetite; large quantities of food distending the stomach; and lately she has been troubled with vomiting soon after eating. The bowels are very costive and are moved only by the administration of purgatives. She reports her urine to be scanty and high-colored. She thinks the present attack began on the eighteenth of May last, when she first perceived the tumor; her attention being attracted to it by pain over the liver, accompanied by a swelling in the epigastrium, with œdema of the lower extremities. It has rapidly increased to its present size, accompanied by the emaciation and costiveness above mentioned. She says that she has been troubled by costiveness for the last eight or ten years, always requiring medicine to procure evacuations, and, as she says, has never had the jaundice. She has frequently applied as an out-patient, and was admitted in July, and received several enemata of turpentine and castor oil which afforded her some relief. She was discharged in August, at her own request, with

symptoms somewhat ameliorated, but again applied for admission on the fifth of September, with symptoms much aggravated. She is married, and has borne one child; has always enjoyed tolerable health with the exception of constipation, and, as she says, has suffered from wind on the stomach, and a bitter taste in the mouth.

About a year ago she lost the sight of her left eye, which she attributes to rheumatism. The remaining structures are quite prominent, bulging out somewhat and presenting a nodulated appearance, as if some deposit had taken place in the tissue. The right mamma also presents several indurated masses about the size of walnuts, quite hard and firm but free from pain.

PROGRESS OF THE CASE.

The only treatment adopted was calculated to relieve the pain and irritable condition of the stomach with an occasional laxative. The poor woman grew rapidly worse, and died from exhaustion on the 17th Sept. Sectio cadaveris ten hours after death. The body is much emaciated and presents a well-marked jaundiced hue. The abdomen is greatly distended, and percussion elicits well-marked dulness over the upper part, but the lower part gives evident signs of a large accumulation of fluid, which on section of the abdominal parietes was found to be serum of a yellow color. On opening into the cavity of the abdomen the cause of the distension was found to consist of an enormously enlarged liver which occupied the whole of the right hypochondriac region, extending across the epigastric into the left hypochondrium. Downwards it extended into the umbilical region to within an inch of the navel, and on either side into the lumbar region to within an inch and a half of the crest of the ilium. Upwards it encroached somewhat upon the cavity of the thorax, pressing the diaphragm upwards. There were no adhesions except to the diaphragm, and these were slight and of recent date. It measured thirteen inches in its transverse diameter antero-posteriorly, twelve and a half through the right lobe, and nine and a half through the left; at the upper part of the right lobe it measured seven inches in thickness, and three and one fourth in thickness in the left lobe. It weighed fifteen and one-sixteenth pounds. Its surface was studded with nodules varying in size from a walnut to that of a hen's egg, and of the color of a ripe blue grape, some being quite prominent and rounded, and others presenting a depression at their apices much resembling the appearance of Farr's tubercle. To the feel some were soft and fluctuating, others quite firm and elastic. On the surface of the right lobe near its margin there was a depression corresponding to the sulcus felt during life. The

substance of the liver between these tumors appeared natural; the gall bladder somewhat enlarged and partially filled with bile. The tumors contained a dark colored matter varying in consistence from that of a thin liquid to that of the yolk of a hard boiled egg. Under the microscope was discovered large numbers of fusiform caudate, and elongated cancer cells, with free nuclei, and fat globules and also compound cells interspersed with granules of pigment, the proportion of pigment matter however being quite small. The stomach was healthy in structure, but was considerably diminished in size from the pressure of the tumor. The intestines were pressed downwards and backwards but appeared healthy. The mesentery was studded with a pigmentary deposit varying in size from that of a pinhead to that of a large pea. The mesenteric glands were also the seat of an abundant deposit. The kidneys were normal in size; the capsules were easily detached; there was some evidence of fatty degeneration; in both however there was an abundant melanotic deposit. The pancreas also contained a large amount of the same deposit, but in other respects was quite normal. The spleen was firm and much contracted weighing five ounces and containing a slight deposit of melanotic matter. The lungs were full of the same deposit, especially at their apices; the lower lobe of the right was somewhat congested. The heart was quite healthy in structure, but under the cardiac layer of pericardium there was an effusion of serum presenting a yellow gelatinous appearance. The uterus was quite normal in structure, but its serous covering was the seat of an abundant melanotic deposit, while both ovaries, especially the right, were filled with the same deposit, as were also the layers of the broad ligaments. The left eye was also the seat of an abundant deposit of the same nature. The head was not examined.

CORRESPONDENCE.

To the Editors of the Canada Medical Journal.

GENTLEMEN,—The "Journal" continues to improve steadily with age. I have been much pleased with the last number—now open before me at page 174—and not least with that very sensible and practical review of Hodge's work on the obstetric art. I agree fully and entirely with the reviewer in his eulogium—I agree with the reviewer in preferring Naegle's *five* to Baudelocque's *twenty-seven* presentations—I agree with the reviewer in his many other practical observations in the article in question; but I agree with the author, and not with the reviewer in his (the author's) endorsement of Baudelocque's opinion, that pelvic

presentations and all their varieties belong to the Eutocia or unaided labors. To the practitioner who has an acquaintance with the art which the reviewer—judging from his remarks—evidently possesses, the matter is of small importance; but to the juvenile and inexperienced practitioner, who is afraid of taking steps in any direction without his Churchill or his Ramsbotham, or some riper medical friend to guide him, the classification is of the first importance. Let but the young practitioner be impressed with the idea that, as the reviewer has it, in breech cases “as a general rule, if left to nature, ninety-nine out of every hundred would result fatally to the child,” and he will not be slow to employ all the artificial means possible to avert such a calamity. But are the chances, as a general rule, improved by interference? We believe not. The breech presentation continues a breech presentation to the end, or is converted (a very questionable proceeding) into a footling. In the first case, the child is exposed to some risk from the manipulations of the accoucheur, the body is gradually drawn down—and *then* begins the difficulty. The uterus does not contract with the steadiness and firmness it would have done had the expulsive powers of that organ alone sufficed to accomplish delivery. The danger to the cord *only begins* after the body is expelled. It is then, and then only, interference is called for, or indeed justifiable, unless under circumstances of severe and protracted labor. But if, as some recommend, the presentation is changed to a footling, what then? Every circumstance is changed for the worse. The mother, 'tis true, may not suffer so much—but the danger to the child is increased tenfold. The cord is exposed to almost certain pressure. And is the danger to the mother not also increased? If traction is resorted to at all the danger *is* increased, and increased immeasurably if the breach is made a footling presentation. Breech presentations have fallen to my lot not unfrequently. To compensate for the *unusual* condition, I have been in the habit of leaving most of the cases to themselves, but should the body not make that *steady* progress which one might expect—then and then only the gentlest, most delicate coaxing, so to speak, with the index finger in the groin or brim of the pelvis is resorted to to facilitate delivery. Rarely indeed has ever this interference been necessary, and more rarely still has all avoidance of manual interference been followed by untoward circumstances either to mother or to child.*

* I speak here only of non-interference during the continuance of the body of the child within that of the mother. When the body is expelled, no time should be lost in introducing the finger into the mouth, depressing the chin, and thereby effecting delivery.

I have encroached upon your space with the sole object in view of re-echoing Baudelocque's opinion—an opinion which I am glad to find is shared in by Hodge,—that “ordinarily the mother is adequate to her own delivery,” and of giving expression to my own, that although many attentions may be demanded to *facilitate* the natural modes of delivery, yet that any decided *interference* is usually uncalled for.

I am, yours sincerely,

MEDICUS.

Very little is needed on our part in reply to Medicus, as he appears to agree perfectly with us in the remarks we made in the review in question. We do not even advocate “the gentlest, most delicate coaxing so to speak with the index finger in the groin or brim of the pelvis.” Breech presentations when not primipariæ, rarely, if ever require aid until after the birth of the body of the child, but when that is effected we think that unless the head is speedily delivered, the delay would result in rapid death to the child. Dr. Hodge in his work advises leaving the delivery of the head to nature unaided. At page 200 he says: “The head being in the pelvis, the practitioner should never forget that the uterine contractions can have no influence over its propulsion, and that the completion of the delivery must depend on the voluntary exertions of the mother. Hence she should be strongly encouraged to increase her bearing down efforts, while the practitioner, carrying the body of the child in front of the symphysis pubis, should place the fingers of his left hand on the perineum in front of the coccyx, so as not only to support the perineum, but through it, to increase the disposition to flexion by pressure on the top of the os frontis which will now be found resting on the posterior wall of the vagina.” 'Tis true the author fully recognizes this as a most critical period as regards the child's life, and recommends the novel method of acting on the child's head through the rectum of the mother. For our own part we prefer the old fashioned way of the finger in the mouth of the child, or what is better, especially when the parts are rigid, and the child's head large, that of slipping on a pair of short forceps and delivering at once, we cannot see the object of delay, and are convinced that it is the period of greatest possible danger to the life of the child. Nothing can be more pernicious than meddling midwifery; but to fairly represent how to act and when, becomes the duty of the teacher of the obstetric art.—EDS.

To the Editors of the Canada Medical Journal.

GENTLEMEN,—Pray say a word to the Governors of the Montreal General Hospital, that they may be induced so to alter the operating theatre, that students may have some chance of seeing the operations. As it is now, it is impossible.

SEVERAL MEDICAL STUDENTS.

REVIEWS AND NOTICES OF BOOKS.

The Pathology and Treatment of Venereal Diseases. By FREEMAN J. BUMSTEAD, M.D. Second Edition. Philadelphia: Blanchard & Lea; Montreal: Dawson Brothers.

It was in 1861, that Dr. Bumstead first introduced to the profession his able work on Venereal Diseases, which, containing many new and strange ideas, met with a somewhat cold reception from a class of practitioners, ever slow to receive that which goes to contradict the views, which they have held as correct and orthodox, for many years. An investigation of the subject has clearly shown the wisdom of Dr. Bumstead's deductions; and now that the demand has brought out a second edition, we congratulate our author upon the recognition which his labors have received during the past three years. He has established for himself, not only on this continent but in Europe, a reputation as an authority on the subject of venereal diseases, and his book has received the highest commendation from all the medical journals of the Old World.

The division of labor, so to speak, in investigating diseases, for which the last few years especially has been remarkable, has done not a little to advance the science of medicine as a whole. Each investigator has added his quota to the common stock; and perhaps in no department has there been a greater improvement, than in the pathology and treatment of venereal complaints. The most interesting is the enunciation of the distinct character of chaneroid and syphilis, and the fact that syphilis pursues the same course, whether derived from a primary or secondary symptom, commencing in each with a chancre at the point the virus enters the system. The work opens with an ably written chapter on that most common affection, gonorrhœa. He strongly recommends the abortive treatment, should the cases come early under observation (which they seldom do). Our experience is certainly not as great as Dr. Bumstead's, but such as it has been, it is most decidedly against the adoption of such treatment. We have but rarely seen it effectual, and in three-fourths of the cases, its use has been followed by violent attacks of orchitis, the subsequent return of the discharge, being more difficult of management, and in many cases ending in an obstinate gleet. We are glad to notice that our author takes strong ground regarding the occurrence of gonorrhœa, independent of contagion. Upon this point we think few will disagree with him, whose experience in this class of diseases has been at all large. We have had several cases where a most obstinate

discharge has followed coitus, at the time of the menstrual discharge. He says :

“Most cases of gonorrhœa from leucorrhœa or the menstrual fluid, present no characteristic symptoms by which they can be distinguished from those originating in contagion. The contrary is frequently asserted, and it is said that the former class may be recognized by the mildness of the symptoms, the short duration of the disease, and the absence of contagious properties. I am familiar with the slight urethral discharge unattended by symptoms of acute inflammation, and disappearing spontaneously in a few days, which sometimes follows intercourse with women affected with leucorrhœa ; but such instances are far less frequent than those in which the disease is equally as persistent and as exposed to complications as any case of gonorrhœa from contagion. Some of the most obstinate cases of urethritis I have ever met with have been of leucorrhœal origin, and have terminated in gleet of many months' duration. Diday has even set apart those cases of urethritis which originate in the menstrual fluid as constituting a distinct class, characterized by their greater persistency and obstinacy under treatment than cases of gonorrhœa from contagion. Those who maintain the non-contagious character of urethral discharges of leucorrhœal origin have failed to adduce the slightest proof in favor of their assumption ; and it may safely be asserted that none of them would venture to make a practical application of their principles.”

For the third stage of gonorrhœa, Dr. Bumstead states he has found sulphate of zinc to the strength of twelve grains to four ounces of water most useful. In the first edition of the work he stated his aversion to the use of Holt's dilator in the cure of strictures—the “immediate plan,” as it is termed. He has now changed his opinion, and says, “I have tested Mr. Holt's method in three cases of stricture with the most satisfactory results, and so far as I am able to judge from this small experience I am led to indulge the most favorable opinion of its value.” The third portion of the work is devoted to syphilis, and a more thorough compilation of the subject we do not know. It is concisely written, the details of the different forms of syphilis, being all that an ardent student of this class of diseases could wish. The most noticeable alterations in the second edition are thus mentioned in the author's preface.

“The most noticeable change in the present edition will be found in the division of the work. From a certain deference to the opinions at that time generally received, the chancre and its complications were, in the first edition, discussed in connection with syphilis. They have

now been assigned, as is their due, to separate portions of the work. This change has necessitated a complete reconstruction of the second part of the first edition, and its division into two—a change which, it is hoped, will impress still more strongly upon the mind of the student the distinct nature of the two diseases referred to. The same object has been had in view in abandoning the terms “soft,” “hard,” “simple,” and “infecting chancre”; and in applying, in accordance with logical accuracy, the term *chancre* exclusively to the initial lesion of syphilis, and that of *chancroid* to the contagious ulcer of the genitals. The practical portion of the work has also undergone important alterations on various topics, among which may be mentioned the treatment of stricture by the “immediate plan” of Mr. Holt; the abandonment of specific remedies in most cases of initial lesion of syphilis; the preference given to the external rather than the internal use of mercury in secondary and tertiary syphilis; and the necessity of trusting to nature, aided by hygienic influences, and not to treatment indefinitely prolonged after the disappearance of all syphilitic manifestations, to eliminate the virus from the system. Numerous emendations and additions of a minor character have been made; every portion of the work has been carefully revised; a number of chapters have been rewritten; several new illustrations have been added; and no effort has been spared to render the present edition a complete treatise upon the subject of venereal, thoroughly on a level with the most advanced state of our knowledge.”

To the practitioner who has a practice in this particular department of our art, we would say that he is not in a position to do his patients that justice they deserve, without a careful study of Dr. Bumstead's work.

The Principles and Practice of Obstetrics. By GUNNING S. BEDFORD, A.M., M.D., Professor of Obstetrics, The Diseases of Women and Children, and Clinical Obstetrics, in the University of New York, &c., &c. Illustrated by four colored lithographic plates, and ninety-nine wood engravings. Third Edition. Carefully revised and enlarged. Royal 8vo. pp. 743. New York: William Wood & Co., 1863. From the author.

This truly practical work ran through three editions in the space of some fourteen months; a fact of itself sufficient to indicate the high appreciation in which the author is held by the American public. We learn that this work has been adopted as the text book in some twelve or more medical colleges in the United States.¹ From its easy flowing

style, and clear enunciation of every topic connected with the science of obstetrics, we have little doubt that Dr. Bedford's lectures will become very attractive to the student and practitioner. We are aware that in our own University it is used by many of the students, although it does not appear in the list of works recommended as text books.

A Treatise on Pharmacy, designed as a text book for the Student, and as a guide for the Physician and Pharmaceutist, containing officinal and many unofficinal preparations. By EDWARD PARRISH, graduate in Pharmacy. R. 8vo. Third Edition, pp. 850. Philadelphia: Blanchard and Lea, 1864.

We have examined this large volume with a good deal of care, and find that the author has completely exhausted the subject upon which he treats; a more complete work, we think, it would be impossible to find. The volume opens with a description of the furniture and the various implements, which are necessary to the dispensing office or shop, a chapter so full of useful hints that we cordially recommend its perusal by all pharmaceutical students; then follows a chapter on the pharmacopœia of the United States; giving a history of its adoption, and a brief glance at the additions and improvements made in the revised edition of 1863. From the author's remarks we would almost imagine that many "cooling summer beverages," of which our neighbors as well as ourselves perhaps, use not a little, have been made officinal preparations—soda powders and seidlitz powders have. Chapter three is directed to weights and measures and specific gravity, while the greater part of the remainder of the book is devoted to practical pharmacy, of which the work is a thorough exposition. At the end a chapter is added concerning prescriptions sent to druggists to be made up which is worthy of attentive perusal, especially that now-a-days so few physicians are dispensing their own medicines. It is a somewhat singular fact that but few graduates in medicine are at the time of graduation able to write what would be called even a decently-written prescription; a glance at the prescriptions on fyle at any drug-store in the province doing a dispensing business will amply confirm our statement. This is a matter which is deserving of attention; and we think the Medical School, which will first undertake the drilling of its students into the art of writing prescriptions, will be doing not a little to elevate the social position of its graduates, and giving them instruction for which they certainly cannot be too grateful. Returning from this digression, the chapter we have alluded to is well written, and contains

many valuable hints concerning the writing of prescriptions. The author strongly depreciates their being written in pencil, and advises the physician always to carry clean paper with him. We are sure we know some drug stores even in our own city, to whom the adoption of this suggestion would be a great boon. Space will not permit our saying more. To the student of pharmacy the work is indispensable; indeed, so far as we know is the only one of its kind in existence, and even to the physician or medical student who can spare five dollars to purchase it, we feel sure the practical information he will obtain will more than compensate him for the outlay. It is illustrated by two hundred and thirty-eight wood engravings.

The Physician's Visiting List, Diary, and Book of Engagements for 1865.

This little volume, so indispensable to every physician and surgeon, has been kindly forwarded to us by the publishers, Lindsay and Blakiston, of Philadelphia. We feel sure that no one who has once made use of this Visiting List would be without it for double what is charged for it. From personal experience we cordially recommend it to our readers. It is arranged for 25, 50, and 100 patients weekly, the former being sold at \$1.25, the second at \$1.50, and the latter at \$2.25. Dawson Brothers have it for sale.

PERISCOPIC DEPARTMENT.

Surgery.

ABSORPTION OF DEAD BONE.

Dr. W. S. Savory read a paper (Feb. 23, 1864) before the Royal Medical and Chirurgical Society. The question, he stated, whether dead bone can be absorbed, still awaits a satisfactory answer. For while careful and accurate experiments have furnished only negative results, there are unquestionable facts which compel us to admit the possibility of the occurrence. One all important consideration seems to have been hitherto neglected in the inquiry—the influence of pressure in determining the result. Thus, in the experiments which have been performed on the subject, and which have naturally led to the conclusion that dead bone may be kept amidst living tissues for weeks or months without losing the merest fraction of its weight—in these experiments the dead bone was kept in simple contact only with the living parts. It appears that no considerable pressure was maintained. Whereas when ivory pegs are

driven into bone, extreme pressure is of course produced. In order to test this view, some experiments were performed, which are related in the paper. It appeared to the author that the only explanation which can be offered of the result of these several experiments is, that the absorption of dead bone, when in contact with living bone, is determined by the pressure to which it is subjected.

Mr. Hilton said the profession ought to feel obliged to Mr. Savory for having adduced by well-considered and well-arranged experiments such conclusive evidence of the absorption of dead bone by the surrounding tissues—a fact not usually admitted by surgeons. He (Mr. Hilton) had several times noticed, on looking at two ivory pegs which had been employed in the same case of ununited fracture, and apparently under the same conditions, that the surface of one of them was partially absorbed, whilst the other did not manifest any loss of substance—a difference hitherto inexplicable, but now elucidated by the author's paper, as depending upon the variable pressure to which they had been subjected. An interesting point, however, presented itself for consideration to which the author had not made any reference—viz., What was the amount and duration of pressure required to induce this absorption? for dead bone was often seen buried within granulations which were undoubtedly capable of exerting much pressure without the slightest appearance of any absorption having occurred. For instance, in the case of an amputation through the femur, the same end of the bone may come away necrotic after several months' subjection to the pressure of muscles, fascia, granulations, bandaging, and strapping, yet the track of the teeth of the saw used at the amputation would be seen as cleanly cut and as sharply defined as on the day of the original operation. The same kind of facts was quite as discernible in cases of compound fracture of a long bone, where the fractured end of bone, although surrounded deeply by granulations and new bone during several months, would present the sharp, well-defined edge of the fracture as evidently as on the day of the accident, uninfluenced by the pressure of any of the surrounding living tissues. Mr. Hilton had removed from the leg several portions of a comminuted compound fracture of the tibia eight years after the accident and seven years after the closure of the external wound, and upon two of them the well-defined edge of the original fracture was obvious and markedly different from the serrated edge observable where the piece of bone had been separated from the lining bone by the slow process of absorption. Mr. Hilton would suggest to the author the inquiry as to how or by what combination of minute events does pressure contribute towards the absorption of the dead bone, because the pressure in his (Mr. Savory's) experiments was made equally

on both the living and dead bone. No doubt such an investigation could not be placed in better hands than Mr. Savory's.

Mr. Savory said he considered it best in the paper simply to demonstrate the fact that the absorption of dead bone is determined by the pressure to which it is subjected. In working at the matter, of course he had thought of the nature of the influence thus exercised, but he did not consider any opinion which he might have formed on the subject worth expressing. The question was not in relation to the absorption of bone, whether living or dead, but to the effect of pressure on the absorption of dead bone. With respect to the case Mr. Solly mentioned, it was not enough to show that dead portions of bone bore evidence of having been partially absorbed, it must be shown that such absorption occurred after the death of the bone, and thus independently of all pressure. Mr. Savory defended the use of the word "absorption." He had not employed the term without foreseeing the objection that might be urged against it; and so he had been careful to relate how, in some of the experiments, the wounds at once closed, and completely healed without any discharge or other means by which disintegrated fragments of bone might have escaped. Moreover, if the preparations were examined it would be seen that, in some of them, the portions of dead bone which had been removed could not have escaped, for the holes were tightly plugged by the pegs which had been driven in. With reference to the destination of the bone which disappears in disease, Mr. Savory thought that the evidence advanced to prove that this is always disintegrated and cast out, was unsatisfactory and inconclusive. Of course, in some forms of ulceration of bone, as in phagedenic ulcers of soft parts, disintegrating fragments might perish and escape; but in other less destructive forms of ulceration bone might disappear through absorption. Much had been made of the fact that the discharge from carious bone contains an unusual abundance of phosphate of lime, this being supposed to represent the dissolved osseous tissue. But while, on the one hand, this would prove too much, the proportion of bone which disappears not being equal to the quantity of phosphate of lime discharged, on the other hand, a better, a more philosophical explanation of the fact might be given. As in health each part assimilates to itself from the blood its own proper constituents, so in abnormal forms of nutrition it was reasonable to believe that the material furnished by different structures would present characters of composition more or less corresponding with those of the tissue whence it proceeded. Be this as it might, however, in some at least of the experiments described there was no means by which the portion of bone which had disappeared could have escaped externally.—*Med. Times and Gazette*, March 5, 1864.

Medicine.

THE HOUR OF DEATH.

Mr. Alfred Haviland, Surgeon to the Bridgewater Infirmary, read a paper, at the meeting of the British Association for the Advancement of Science, recently held at Bath, "On the Hour of Death in Acute and Chronic Disease." The author commenced by stating that the subject of the hour of death had occupied the attention of medical writers from the time of Aetius, who flourished at the Court of Constantinople in the fifth century, up to the present date, but that no practical fruit had been the result for the physician in his treatment of disease; he concluded that the time had now arrived for a thorough investigation of the facts in our possession, inasmuch as if there be any latent truth in them of importance to mankind, it is our simple duty to evoke that truth, and avail ourselves of its teaching to the practice of medicine. He remarked that the physician's duties do not cease when he has ascertained the disease of his patient, and prescribed medicine to remove it; by medicine alone the patient is not healed; he has to act upon the advice of Hippocrates, and see that those in attendance do their duty also, and in his absence watch every phase and act in the living present. But, to do so correctly, the physician must know each cause of change, and by his knowledge anticipate what may occur, lay down simple rules for the guidance of friends and nurses, and teach them how to watch each circumstance of disease; he must know the changefulness of our bodies in health; he must take due account of this changefulness when illness supervenes; he must know when all our vital functions are at their height; he must know when they are at their lowest ebb;—for this knowledge is a most necessary element of success in his combat with the enemy he is employed to encounter. Of late years the art of nursing has more than ever occupied the thoughts of physicians and the laity at large. We have had noble efforts made in the camp and at home to soothe the anguish of the wounded and diseased. The author had collected over 5,000 cases of death, with the *hour of death*, and other circumstances recorded, which he had tabulated and exhibited on a large chart, the different results being distinguished by colored diagrams. By this chart he showed that, in 1,000 cases of death in children under five years of age, the periods of the greatest mortality took place during the hours between one and eight a.m., and that an extraordinary depression took place in the succeeding hours. Between nine and twelve p.m. the rate of mortality was at its minimum. He then compared these statis-

tics with 2,891 deaths from all causes, and the chart showed how remarkably the wave lines of death compared with those above. He then compared these diagrams with deaths from consumption, which, although they showed a general resemblance in the wave line, yet between the hours of four to eight a.m., there was a depression, when compared with the first four hours period. He showed that small numbers are not sufficient for a statistical truth, and he therefore urged upon his provincial brethren to assist him in his investigation by forwarding to him data for further investigation of this interesting subject. He contended that the tables on the chart proved the extraordinary mortality in the early hours of the morning, when the powers of life were at their lowest ebb, and, strange to say, when the patient was least cared for. He urged the necessity of feeding and stimulating the patient at his weakest hour, so as to tide him over a critical period, and, even if death be inevitable, so to support the patient that he might at least have a few hours more of life snatched from eternity, to admit of his being able to carry out some neglected duty, pardon some enemy, or see some beloved friend. He finally urged upon his professional brethren the high importance of teaching friends and nurses how to attend to those under their charge. He concluded by saying that the subject itself required no apology for its introduction to the Association, however much the mode of his treating it might do so. He felt convinced that it was one which had occupied the attention of many of his hearers, when they had been watching hour by hour the fitful changes of disease in the persons of those dear to them, or of those to whom as nurses they had desired conscientiously to do their duty. To simplify this duty and to calm this solicitude at a time when either an excess of the one or an ignorant neglect of the other might be fatal, was one of the main objects of this investigation; and he felt convinced, however imperfectly he might have expressed his opinions on the subject, that it is one of deep interest not only to his Profession, but to the community at large, and that the British Association would not deem it unworthy of their consideration.

Midwifery.

THE DIET OF CHILD-BED.

By GRAILY HEWITT, M.D., Physician to the British Lying-in-Hospital; Lecturer on Midwifery and Assistant Physician-Accoucheur at St. Mary's Hospital.

GENTLEMEN,—The importance of the subject which I now propose to discuss—the dietary proper for a patient during the puerperal state—is

I believe, hardly to be over estimated. The various accidents and disorders incident to the puerperal state, are as I shall endeavor to show you, very intimately dependent on conditions over which a judiciously contrived dietary exercises a marked control. The principles which guide us in the selection of remedies for those disorders are identical with those on which we rely in laying down regulations for the diet and regimen of the patient, and in the determination of this question are involved many points of vital interest in the pathology and treatment of puerperal diseases. The "diet" which is best adapted for a woman after parturition is that which will best secure her from becoming affected with the diseases incidental to that period; and no one who has witnessed the terrible rapidity with which these affections not unfrequently overwhelm the unfortunate subjects of them, will be disposed to consider anything unimportant which has a bearing on their prevention.

The subject of the diet of child-bed is one which has been of late forcing itself on professional attention; and I have been long impressed with the necessity for a revision of the rules laid down in the various text-books on midwifery, relating to the diet and management of women during the puerperal state, based upon a reconsideration as to the correctness of the principles on which those rules have been constructed. On July 9th, 1863, I read a paper on this subject at the annual meeting of the South Midland Branch of the British Medical Association, held at Peterborough. In this paper, which was not at the time published, I expressed very strongly my dissent from the teaching which has been prevalent on the matter in question, and recommended the adoption of rules, as I conceived, more rational, and better adapted to the end we all have in view—namely, the preservation of the puerperal patient from sickness and disease. I have the satisfaction of being able to state that the present respected president of the Obstetrical Society, Dr. Oldham, in his address at the annual meeting of the Society in January, 1864, expressed himself on this very subject in terms almost identical with those used a few months previously by myself at Peterborough.

The text-books most generally in use are those of Dr. Churchill, Dr. Ramsbotham, and Dr. Tyler Smith. The principles laid down in these works in reference to the diet of the patient during Child-bed are to be gathered from the following quotations.

Dr. Churchill says, in reference to the diet: "Excess, by inducing feverishness, may retard the convalescence. The patient should be confined to slops—gruel, panada, arrowroot, milk, whey, weak tea, &c,—with bread or toast and butter or biscuit, for five or six days, when the excitement produced by the secretion of milk has subsided; and if there

be no counter-indication, she may take some broth, and on the seventh or eighth day some chicken or a mutton chop, with some wine-and-water." (4th edit., p. 234.)

Dr. Ramsbotham directs that nothing but tea, toast, or farinaceous food be given until the bowels are freely opened. A little beef-tea or broth is then allowed. To this, in a day or two, a light pudding is to be added; "and in a week she may be allowed a small quantity of solid meat." Stimulants of any kind are forbidden, under ordinary circumstances, until near the end of a fortnight. (p. 151.)

Dr. Tyler Smith says that no solid food should be given until after establishment of full secretion of milk and action of the bowels; but he at the same time adds that "cases sometimes occur in which the exhaustion is so great that animal food and stimulants are required from the first." (p. 319.)

From these quotations it is evident that the principle of practice recommended by these standard authorities is one of low diet from the first; Drs. Churchill and Ramsbotham ordering a low diet for as much as a week after labor has taken place; and Dr. Tyler Smith concurring in the principle of low diet as a rule, but admitting the exceptional necessity for deviation from this rule. The practice is, as I hope to show, wrong and unnatural. Nevertheless, the rules which I have mentioned to you are followed by a majority of practitioners. We have so grown up in the practice that it has hardly seemed to be extraordinary that a woman should be allowed little more than gruel, *ad nauseam*, for a week or more after her labor is over.

Why is it that it has been considered necessary to place a woman recently delivered on a low diet? It was thought that the adoption of a low diet was likely to be the means of preventing puerperal accidents and diseases. This is the principle on which these rules are based. Is this principle true? Are known facts in consonance therewith? I believe the principle to be entirely wrong; I am quite sure that facts do not bear it out—nay, that they distinctly contradict it. Let us consider for a moment what is the condition of a woman directly after delivery. The nervous system is much agitated; she is often much exhausted; her muscular system has been exercised powerfully and to an unwonted extent; she has lost a certain quantity, in many cases a considerable quantity, of blood. The rational treatment of a patient presenting such symptoms would be a restorative one; it would involve (first) rest, and if possible sleep; and (secondly) the administration of such nourishment as would replace what has been lost; and it is obvious that the patient will require food in proportion to amount of loss sustained. Further, it must

not be forgotten that in many cases the patient, although not giving any obvious external sign of weakness or prostration, is nevertheless in a state very closely approaching to one of exhaustion; and this is particularly observed where the constitution has been undermined by rapidly succeeding pregnancies in women who are insufficiently fed and badly cared for. The rational treatment then, I would repeat, is to administer food such as will restore what has been lost; and by "food" I understand whatever tends to support and maintain vital power—animal food especially, combined or not, according to circumstances, with liquid containing alcohol. So far as the condition of the patient immediately after labor is concerned, there would seem to be no reason for depriving her of such food and restoratives as would be administered under circumstances apart from the parturient state altogether, and with a view of alleviating similar symptoms.

But, it is argued, the patient must be kept on low diet in order to prevent mischief arising, and to ward off certain evils to which she is liable. A low diet will prevent, it is said, the occurrence of what is called "inflammation." Let us consider these various "inflammatory" conditions liable to arise after parturition, with a view of ascertaining how far they are likely to be prevented, or the reverse, by the adoption of a low diet.

1. *Milk Fever*.—This is usually described as an affection which comes on about the third day, when the breasts begin to swell, the pulse rises, and there is a feverish heat of the skin, these symptoms subsiding in the course of twenty-four hours, more or less. From what we read in books, we should conclude that this is a common disorder; but the fact is that it is a very rare disease indeed, so much so that an eminent authority, M. Pajot, of Paris, almost doubts the existence of the affection. As bearing on this question, I may mention that out of the last fifty cases which have been under my care in the British Lying-in Hospital there were only two in which the symptoms present had any resemblance to those of "milk fever." This disorder is, you will perceive, ephemeral; no bad effects result from it. And now an important question arises—Would this disease be observed if the patient were well fed? My own experience has led me to the conclusion that milk fever is less likely to occur when the patient is well fed than under the opposite conditions. In the two cases which I have just mentioned, as observed recently by myself there was present a markedly defective state of the nutritive functions, and both patients had been, prior to their admission into the hospital, very indifferently fed. I strongly suspect that "milk fever" is in some cases connected with the practice, prevalent with some nurses, of not putting the child to the breast until one or two days after labor. This practice is

one which I believe to be highly improper, and one calculated to lead to the production of sore nipples and milk abscess. On this point, however, I do not wish to enlarge at this moment. The point to which I wish particularly to call your attention is, that it is very questionable if a low diet tends in any degree to prevent the occurrence of milk fever.

2. We come next to the more serious puerperal diseases—“*puerperal peritonitis*,” *puerperal fever*, *phlegmasia dolens*, &c. With respect to the pathology of these diseases, there is very much more to be said than can be compressed into the short space now at my disposal, and I can only state those conclusions respecting them which may, as I believe, be made a satisfactory basis for the application of therapeutics. It was formerly considered, and the idea is still prevalent to a wide extent, that the essence of these serious puerperal affections was “inflammation.” Thus when, two or three days after labor, the patient began to complain of shivering, of pain over the uterine region, when the pulse became frequent, these symptoms were considered to indicate the presence of inflammation of the uterus or of the peritoneum. It is now known, however, although not sufficiently generally admitted, in the first place, that these symptoms frequently indicate the passage of poisonous material into the blood, really a form of pyæmia; and, in the second place, that while mischief of an “inflammatory” kind may be set up in consequence of the introduction of such poison, or in consequence of violence sustained by the uterus during parturition, the best method of combatting the inflammation is, not by employing remedies formerly considered anti-inflammatory, such as bleeding, antimony, mercury, administration of low diet, and the like, but by supporting the strength of the patient, and by exhibition of remedies of a soothing and sustaining nature. So, again, in cases of puerperal fever: the condition actually present is a poisoning of the blood attended with symptoms of extreme depression, in the prevention and treatment of which low diet and lowering agents of whatever kind are, in my opinion, noxious and injurious in the last degree. In *phlegmasia dolens*, another accident of the puerperal state, the essence of the disease being erroneously considered to be “inflammation,” it was supposed that a low diet would tend to prevent such inflammation. The word “inflammation” has much to answer for in respect to the injurious influences it has exercised on the treatment of puerperal diseases. It is responsible for the low-diet system which has so largely prevailed in the lying-in room—a system which, by weakening the patient, has rendered her liable to become a prey to the poisonous influences by which she may be surrounded, and has induced a mode of treating puerperal diseases calculated to neutralize and negative the efforts nature will always make to overpower and

throw out the subtle agent creating mischief within. In the prevention of puerperal fever, the first thing to do is to prevent contact with septic agencies from without; the second, to secure the patient from the operation of septic agencies within. The latter indication is best fulfilled by securing early, good, and permanent contraction of the uterus. A relaxed uterus readily becomes the medium of absorption from the inner surface of the organ through the open extremities of its torn vessels. Perfect contraction of the uterus is, I believe, an almost complete safeguard against introduction of septic matter into the system, and contraction of this kind is best maintained by keeping up the vital powers of the patient, which can only be done by taking care that she is well nourished. Defective contraction of the uterus I have invariably observed to be present at the outset of an attack of puerperal fever.

Modern pathological research has removed phlegmasia dolens from amongst the affections requiring an antiphlogistic treatment and prophylaxis. The substance which fills the hardened vein was formerly believed to be the product of inflammation, but we now know that it results simply from coagulation of the blood. The blood coagulates in the veins; the clot may soften, and become converted into a soft, puriform material, which, though looking like pus, is only broken down fibrin. Phlegmasia dolens may occur in men as well as in women who have not had children, and it is not unfrequently observed in cases of phthisis. Phthisis is, as we all know, not an inflammatory disease, its distinguishing element being defective nutritive power. It has been shown by Professor Humphry, of Cambridge, that this tendency to coagulation in the veins, apart from puerperal influences, is associated with a depressed condition of the vital powers, and he has offered abundant clinical evidence of the correctness of this statement. Now, in the case of a woman recently delivered, a depressed condition of the vital powers is very far from uncommon. If the uterus does not contract, an unusual quantity of blood remains in its vessels, and there coagulates. The coagulum spreads upwards by extension, and when it reaches the common iliac vein the circulation in the external iliac vein may become stopped at any moment. Undue loss of blood during or after parturition necessarily depresses the system, and facilitates coagulation in the uterine veins, a tendency still further increased by the circumstance that the uterus in such cases does not contract well. That phlegmasia dolens is more often observed after parturition, in cases where much blood has been lost, is a matter of observation; that it has been noticed to have occurred very frequently in cases where the vital powers have been inadequately sustained by nutritive material will become also evident to those who will take the trouble to inquire

into the matter. The evidence to be collected, pathological as well as clinical, is all in favor of the proposition that by a generous diet will the tendency to phlegmasia dolens—supposing it to exist—be likely to be counteracted.

If, for the sake of argument, we admit that these puerperal accidents are inflammatory, the utility of a low diet cannot be maintained in face of the great alteration which has come over the professional mind in reference to the treatment of inflammation. The practice of bleeding has very largely gone out; mercury and antimony are far less relied on than formerly. There is certainly much doubt as to their efficacy in these cases. The absolute dietary formerly insisted on has equally fallen into disfavor.

It may be urged that I am arguing on theoretical grounds; but I can state as the result of very careful personal observation, that the conclusions I have enumerated as to the bad effects of the low-diet system in the prevention and treatment of the puerperal diseases alluded to are amply borne out by the facts in my possession. I have also—and this is perhaps more to the point—abundant evidence of the most practical kind of the value of a generous sustaining and supporting diet and regimen, both in cutting short puerperal mischief of the worst kind, and in preventing its occurrence under circumstances most threatening to the patient. What I have seen of puerperal fever and allied disorders has, indeed, induced me to regard with the utmost horror all remedies of a depressing, lowering character. In the treatment of these affections, large quantities of food and brandy, or an equivalent, I have employed most successfully. It is rational to suppose, and it is consistent with my experience, that this gives a clue to the prophylaxis of these diseases. I say nothing of cleanliness, ventilation, separation from contagious influences, &c.; the necessity for these it must be superfluous for me to expatiate upon.

3. *Puerperal mania* is another affection here to be alluded to in connection with the subject of the diet of child-bed. It will be sufficient perhaps, for me to state in reference to this disease, that a generous diet with opium in large quantities, and absolute rest, mental and bodily, form the essential elements in the treatment. Here, also, the clue to the prophylaxis is offered by the treatment. The disease generally results from the combined action of excitement and weakness, however induced.

4. *Sudden death during the puerperal state.*—This is an occurrence rare, but of great interest. In the cases which have been investigated the accident has been found to be connected with coagulation in the veins and obstruction to the circulation produced by the coagula in question. This form of death is one of the results of what is known as “embolism.” What I

have already said in reference to the circumstances which lead to coagulation within the veins after parturition will enable you to understand why it is to be expected that a low diet will favor the occurrence of this lamentable accident. Apparently the best possible preparation for such a disaster would be to keep the patient on a very low diet, to prevent all motion of the body, thus favoring stagnation of the blood in the great vessels, at the same time neglecting to take any precautions to ensure uterine contraction.

5. *Protracted convalescence*.—This is, if not a disease, certainly a great evil. That the observance of a rigidly low diet during the period of lying-in does tend to render the convalescence protracted does not admit of a doubt. This has been forcibly stated by Dr. Oldham in his address to the Obstetrical Society to which I have already alluded. "The precepts laid down in some of the midwifery books," says Dr. Oldham, "for the management of the puerperal state steadily induce a debility in the first fortnight which requires a drawing convalescence in the second fortnight to overcome.....From first to last elements of weakness and nervous disorder are introduced, and the very diseases are invited which they were designed to remove.

We have now considered *seriatim* the chief of the evils which have to be prevented or encountered during child-bed, and I think it has been rendered evident that the supposition that a system of low diet is calculated to remedy and prevent these diseases is a mistake. The actual practice of those best informed on these subjects has of late years undergone a very marked change. Dr. Oldham is not alone in his practice of supplying the puerperal patient with food of the best kind and in good quantity from the very moment of her delivery. That the time has come for the adoption, by the profession at large, of a more rational principle of treatment cannot be questioned. And now let me state that the views expressed by the illustrious Denman on the subject of the diet of child-bed are in perfect agreement with those for which I have been contending—namely, the impropriety of depriving the puerperal patient of her ordinary food; but his precepts on this point seemed to have almost entirely passed out of professional recollection. Denman says: "After seeing and considering much practice and trying various methods, not only immediately after delivery, but through the course of child-bed, I am fully persuaded that, laying aside all refined speculations, those patients will fare the best and recover most certainly and speedily by whom the least change from their former habits is made. . . . The general principle of making as little change as possible from their former habits and customs, either in diet or in any other respect, will best satisfy the expectations of the medical attendant." (Vol. II., p. 449.)

What I now advocate is a return to these principles of practice. With reference to the particular diet suitable in different cases it is unnecessary that I should enter into any lengthened detail. It is obvious that the quantity of food must be proportioned to the requirements of the patient; one will require meat once, another two or three times, in the day. As a general rule, Denman's advice to make little change in the ordinary diet should be followed; where, however, the labor has been severe or long, where an unusual quantity of blood has been lost, or where the constitution has been weakened by previous illness of any kind, stimulants are, in my opinion, almost imperatively required, unless the patient be able to take animal food, eggs, milk, &c., easily and in good quantity. The exhaustion produced by the labor frequently destroys for a short time the appetite for solid food, and at this period it is necessary to administer nutritious liquid food—milk, soup, beef-tea, eggs beaten up with wine or brandy (and a sufficient quantity of the latter)—in order that ground may not be lost.

SPONTANEOUS EVOLUTION.

Professor Murphey, of London, communicated to the Obstetrical Society of Dublin the following example of this. On the 4th of November, 1862, Dr. Scholefield Johnson was called to attend a lady in her first confinement. He arrived shortly before 10 o'clock a. m.: the pains were then good, and had been so previous to his arrival. After a very careful vaginal examination Dr. J. found the os uteri dilated somewhat larger than a crown piece, and moderately dilatable; membranes entire.

“ Dr. J. diagnosed a head presentation; and, from the position of the posterior fontanelle and sagittal suture, was satisfied that it occupied the third position. No examination was again made until the liquor amnii escaped, the os being three parts dilated; and then, to Dr. J.'s astonishment, he felt the breech; the funis also descended, and gave some trouble; as the pulsations were becoming feeble, Dr. J. delivered his patient at 11:40 a. m. The child was nearly still-born, but was restored with some difficulty.

“ *The child had a swelling on the upper part of the left parietal bone, extending towards the occipital; it increased in size during the next twenty-four hours, and was larger than a pigeon's egg, and evidently contained blood. The ankle also was discolored, and slightly swollen.*”

Is this a case of spontaneous evolution, according to Denman's explanation?

Dr. S. Johnson, a skilful practitioner, felt the fontanelle and sutures,

so as to diagnose the position of the vertex, and made no subsequent examination until the membranes were ruptured, when he found the breech presenting. After delivery, a tumor was found on the upper part of the left parietal bone, just where it ought to be in third positions.—*Dublin Quarterly Journal of Medical Sciences.*

Materia Medica and Chemistry.

ELECTRICITY IN HOUSEHOLD USE.

Boston claims the birth of the philosopher who first drew electricity from the clouds: and New York, the residence of him who utilized it in the art of telegraphy; and now Philadelphia demonstrates her right to the great brotherhood of practical science, by a new and beautiful application of it to an important domestic purpose. The name of Cornelius is soon to rank with those of Franklin and Morse.

Henceforth that very useful, heretofore indispensable, generally disagreeable, and oft times dangerous little article, the lucifer match, may be dispensed with. Its days are numbered, and it may be said to have received its mortal wound by a stroke of lightning.

The improvement which elicits these remarks is called the *Electrical Bracket*, and consists of an ornamental attachment to the ordinary gas burner, by which the gas may be lighted at any moment by the instantaneous production of a spark of electricity. The means of accomplishing this is as simple as it is ingenious, and so easily operated that an infant cannot make a mistake.

The application of electricity to the ignition of the current of gas issuing from an ordinary burner is not a new thing. Many public apartments, as the Representatives' Hall at Washington, the Cooper Institute in New York, and others, having had arrangements for the simultaneous lighting of the gas gets for some years. But the apparatus there employed is the ordinary voltaic battery of cups, plates, acids, &c., requiring daily and careful attention, and sometimes failing in spite of the best supervision.

The genius of Robert Cornelius, of Philadelphia, has furnished us with an arrangement for the creation of the electric spark, entirely different and avoiding all the paraphernalia of the old method.

The means he employs is simple friction of two surfaces of suitable material, by a movement as simple and easy as the turning of a key. The apparatus consists of a brass cup of about the size and shape of an

apothecary's four ounce measuring glass, lined inside with lamb's wool and silk. Into this cup is loosely fitted a plug of hard rubber, and these furnish the surfaces whose friction produces the electric spark. The cup, supported firmly on the bracket, is connected with the gas burner by a fine copper wire covered with silk, and terminating in a platinum point one-sixteenth of an inch from the aperture of the burner; merely lifting the rubber plug from its bed in the cup suffices to produce a spark, which, darting from the platinum point to the burner, ignites the escaping gas. This little apparatus, being without any fluid or screws, or any other adjustment than is described above, cannot get out of order by ordinary usage, and is always ready for instantaneous action. To render it infallible at all seasons and temperatures has been the inventor's chief anxiety, by the use of such materials for the friction surfaces as could not fail to produce a spark in the most unfavorable weather; and judging from the daily observation of one in our own dwelling during the present summer, at times when the exceedingly damp atmosphere would, if ever, interrupt its action, we are convinced that the present arrangement needs no improvement.

This elegant addition to our household convenience, when placed before the public (as it soon will be), will command universal attention and gratification.

The same principle is applied by the inventor in other forms. We have seen five burners of a chandelier simultaneously ignited by one turn of a screw. In this case the friction surfaces have the form of flat discs of about six inches in diameter, and merely raising one from the other with a slight twisting motion, causes a spark which is communicated to each burner by a separate wire conductor at the same moment.

Another form is that of a small brass tube enclosing a movable rod or piston, which slides from end to end of the tube as the latter is turned in the hand. The friction caused by the sliding of the piston produces the spark which is communicated to the burner when the tube is brought into juxtaposition with it. By this arrangement any gas jet may be ignited without either match or torch.

This is one of the neatest inventions it has ever been our fortune to witness; and will doubtless bring to its ingenious and philosophical contriver, what he justly deserves, an ample pecuniary return.—*Philadelphia Med. and Surg. Reporter.*

Canada Medical Journal.

MONTREAL, NOVEMBER, 1864.

PUBLIC HEALTH.

The importance of the subject of public health is attracting very general attention at the present time. The laws which govern public health should be thoroughly studied, and become to all a subject of deep interest. That the invasion of disease and death is preventable to a certain extent is an undoubted fact, one which is daily demonstrated in the cities and larger towns of Europe. That man in the body should be rendered immortal is neither attainable nor desirable; but that he should fill out his allotted time and enjoy the blessings bestowed by an all-wise Creator is the desire of each individual. It has been aptly said by Dr. Aitkin, that "the physician must above all remember that the sphere of his professional exertion is limited, and surrounded by unsurmountable barriers, and that death will eventually come alike to all, reminding him that he himself must become a victim to the incompetency of his art." In the foregoing numbers of this journal we have touched upon some of the causes which affect the health of our city; others exist which admit of remedy if properly looked into. It is not alone sufficient that we inquire into the state of drainage of our houses; this may be regarded as of the greatest importance. The passage of the by-law that all houses shall possess efficient and thorough drainage, under penalty to the proprietors for negligence in complying with the terms of the law bearing on this point, is a step in the right direction, and we trust will be rigidly carried out. Let all premises be efficiently drained; but how is this to be enforced? Surely our city authorities will not trust to police inspection; a proper officer is needed, and should at once be appointed. An officer of health is much required in Montreal, one who, occupying a public post, would be responsible to the citizens for the due performance of a most important duty.

In all cities of any size in Europe and America, the great importance of a health officer is fully recognized; but Montreal has so far contented herself with a health committee,—a committee existing in name, but

whose acts are without result, and of the incompetency of which the chairman has complained. In London no house is permitted to be built or rather rented unless after previous inspection by the officer of health. Markets are with us unvisited, and we daily observe meat publicly exposed for sale, which in other countries would be condemned unfit for the use of man. Were there an officer of health for our city, we have little doubt that much benefit would result. It becomes a necessity forced on us by our altered circumstances. It was all very well trying to grub on without scientific advice, while we were not much larger than a good-sized village; but now the necessity has presented itself in the light of a duty, one specially conservative,—conservative of life, health, and the ordinary comforts of existence. In the last number of our journal we referred to the system of crowding buildings into unwarrantably small space: much more could be said on this point, such as the absence of sunlight, air, ventilation, and the possibility of cleanliness, besides which the absence of sufficient breathing space for the inhabitants,—all fruitful sources of disease. Sufficient breathing space is one of the most important subjects of sanatory science. During our professional career, we have entered rooms when the atmosphere was charged with the emanations from the bodies of the occupants to that degree as to render it painful for us to remain in the room longer than a few minutes: we positively could not breathe. Not long since we went in the depth of night to see a poor man, and on entering a room of certainly not over twelve feet square, we found it occupied by a family, consisting of father, mother, and six children; and, as though the atmosphere was not already foul enough, there were some six or eight sympathizing friends present, who literally filled the apartment. Such tenements are deserving of condemnation as unfit habitations. There are many houses and tenements in our city which do not possess even surface drainage; others which from their position do not admit light; and many sleeping apartments are in back cellars, to which light and air are inaccessible. In other localities cesspools give out their deadly emanations in the immediate proximity of dwellings of the most wretched class, and these again are crowded with several families. Is there any need for this, we ask, in a country like Canada, and especially in a town like Montreal? Surely there is space enough to house comfortably as many more inhabitants, as are to be found in our city. The fearful mortality especially among infants, and the apparent steady increase of disease and death is not to be wondered at. It becomes therefore a necessity, nay an imperative duty, of our city authorities to look into the subject of sanatory reform, and adopt measures for the arrest and removal of nuisances. The world

owes every man of proper principle a living; and society is in duty bound to look after the health and well being of the poorer class. We speak warningly. It is probable that epidemic cholera may again visit the western portions of our globe, as this fearful scourge appears to be following the course it pursued in 1831, 1833, 1848, and 1853. In what an unprepared state would it find us now! Again we might expect a repetition of the scenes of 1832, when death invaded and swept off whole districts.

HONOR TO THE BRAVE.

NOR many weeks ago, a band of twelve physicians, occupying various positions in the army stationed in Canada, left our city (under orders from the authorities) for Bermuda,—then and still the scene of fearful ravages from yellow fever. Few who bade them farewell, and who knew the fearful fatality of the epidemic they were about to encounter, ever imagined that all would pass the ordeal unscathed. Too soon has this fear been realized. Hardly had this devoted band landed upon the pestilential shores, and entered upon the discharge of their duties, than one of their number was prostrated by the disease. Poor Milroy, the active, energetic assistant-surgeon of the 30th Regiment, now stationed in this garrison, was the first victim. Not long was he allowed to labor on his noble mission, ere he passed away, a victim to the disease he went so far to assist in arresting.

At last accounts the disease was raging with unabated fury, and those able were leaving the country. Who can tell upon whom the fell destroyer will pounce as his next victim? for, worn out by watching, dispirited by want of success, they are indeed apt to contract the disease. Who but will remember the fearful epidemic of yellow fever at Norfolk, Virginia, in 1855, when forty physicians fell in the hopeless contest? God grant this visitation in Bermuda may at its close give no such list. How few think of the dangers which the profession is exposed in the discharge of its duties. How few, when they heard of the departure of the twelve physicians for Bermuda, even thought of the dangers they would so soon meet; and yet they are as great as that encountered by assistant-surgeons Manley and Temple in their brave conduct at the recent engagements in New Zealand, and for which their Queen has decorated them with that badge of distinguished bravery the Victoria Cross. We cannot but admire the spirit of true heroism which is exhibited by the man who, at the call of duty, walks to almost certain death, in aid of his fellow-creatures, suffering from a malignant infectious disease; this, in our opinion, is of greater merit, than he who marches to the cannon's mouth, during

moments of intense excitement. One exhibits the cool collected determination, self-sacrificing benevolence of the Christian; the other the plucky spirit, and gallantry of a brave man,—both equally to be admired, and equally deserving of recognition. But if no outward decoration is worn on the breast of the army or civilian physician who so often breathes the pestilential air so filled with summonses of death, there is that inward satisfaction which every physician feels when he knows that he is simply doing his duty, and exerting the talents which his Creator may have given him for the benefit of his suffering fellow-creatures.

Since the above was in type we have been favored with some information from Dr. Muir, C.B., Inspector General, concerning the outbreak of the yellow fever in Bermuda, which we condense below. At the time the disease broke out, the commencement of August, there were five military medical officers stationed in Bermuda; all of these were speedily attacked, and one died (Asst. Surgeon Dodge, 2nd Reg.). Of the medical men dispatched from Canada and Halifax, seven were attacked with the disease, and three have died, viz., Staff Surgeon Clarke, from Quebec; Asst.-Surgeon Milroy, 30th Reg., from Montreal, and Asst.-Surgeon Powell, from Halifax. All the others are convalescing satisfactorily. The naval service sustained a severe loss from the death of Deputy Inspector General Gallagher, who died from the same disease. Mr. Henderson, of the Purveyor's department, who was transferred from Montreal to Bermuda, in May last, also succumbed to the same destroyer. He as well as surgeon Milroy have left many friends in Montreal. By the last official accounts received (dated October 1st), the disease was rapidly declining, and its total disappearance was speedily looked for. The medical officers therefore who could be spared, have been recalled.

It is with the deepest regret that we have in this issue to chronicle the sudden death of our intimate friend and fellow practitioner, Thomas Walter Jones, M.D., who expired on the morning of the 28th ult. He had but recently returned from a visit to Europe and seemed much improved in health. In our December number we will furnish our readers with an obituary notice. Dr. Jones was a graduate of the University of Edinburgh.

TRICHINA SPIRALIS.

The disease resulting from this parasite has attracted a good deal of attention of late, especially in Germany, where a large number having been

poisoned by it after attending a celebration at which they had partaken of sausages containing the trichina. Several cases have been reported in the city of New York; and in May last a number occurred in the vicinity of Buffalo, which are published in the Medical Journal of the latter city. The symptoms of these cases were such as to lead the attending physician to believe he had acute muscular rheumatism to deal with; there was stiffness of the limbs and the whole body, œdema of the eyelids, labored respiration, great prostration, and profuse sweating. At the commencement there was diarrhœa, which soon ceased; but during its entire course there was great sleeplessness and unquenchable thirst. At the *post mortem*, abundance of trichina were found in shreds of sausages which the patient had partaken of, and in muscular fibre, taken from the thorax, abdomen, and thighs of the patient. The microscopic investigations were made by Drs. Hadley and Lothrop of Buffalo.

PLASTER OF PARIS SPLINTS.

One of the documents recently printed by the United States Sanitary Commission for general distribution among army surgeons, is a brochure "*On the Use of Plaster of Paris Splints in Military Surgery*," by James L. Little, M.D., late house-surgeon of the New York Hospital. Full instructions are therein given on the proper methods of preparing and applying the plaster, illustrated by six woodcuts, which render the process intelligible to all. For the transportation of the wounded this is an exceedingly valuable process, as the application may be made at any period of the injury; and the rigidity of the splints, with their easy and perfect adaptation to the contour of the limb, form a perfect protection of the injured parts. "In most cases we have recommended it only as a dressing for transportation. There are, however, many cases of compound fractures, in which this kind of splint may be used during the whole course of treatment. In fractures of the leg, in injuries involving the knee, ankle, and elbow joints; in fractures of the forearm and humerus, it can always be used with advantage. In simple fractures of these parts, where the displacement can be easily reduced, there is no better form of dressing."

DR. RIDGE'S PATENT FOOD.

Medical men as a general rule object to recommend any patented article to their patients. We have received a canister of the above named patent food, together with a note from Dr. Ridge, detailing its qualities

and mode of preparation. We have tried it, and found it to agree better with infants than the various amylaceous articles in use. It is prepared from the finest of wheaten flour, which is subjected for hours to a temperature of 212° Fah:—and contains a small proportion of bicarbonate of soda. In respect to its mode of preparation it is very similar to the boiled flour which is so well known and in such general use in the nursery. It is to be had at the Medical Hall of Messrs. Kenneth Campbell & Co., who are general agents for Canada.

We have to thank Messrs. Davidson & Co., Central Drug Store, for a specimen bottle of the Elixir of Peruvian bark, with protoxide of iron, prepared by J. R. Nichols & Co. of Boston.

It is inferior in flavor to the ferro-phosphorated elixir of Calisaya of Messrs. Caswell, Mack & Co. of New York. We cannot see the advantage of these preparations, and therefore cannot recommend them; the physician has always at hand the cordial tinctures and syrups if he desires to disguise the flavor of his drugs.

DIFFICULTIES OF AMERICAN MEDICAL JOURNALS.

The great advance in the price of paper in the United States, has had a bad effect upon the Medical periodicals of our neighbors. The American Medical Times, published at New York, has been obliged for the present to suspend publication. We hardly think that this fact redounds to the credit of the profession. In Philadelphia, the *Medical and Surgical Reporter*, appeared irregularly for several weeks, but is once more out in regular season.

MEDICAL NEWS.

The number of students, that will attend the lectures at McGill College this session, promises to be very large. Dr. Blackburn, a southern physician residing in Montreal, whose services were accepted by the military authorities to proceed to Bermuda, at the time of the outbreak of yellow fever, has returned to this city.

Dr. Barnes has been appointed Surgeon General of the United States Armies vice Dr. Hammond, dismissed the service. The latter claims that his dismissal was occasioned by conspiracy, false swearing, and a malignant abuse of official power. — Dr. Kidd, of London, with regard to the best method to be adopted in administering chloroform, (*Medical Circular*, August 31), says: "The best form of inhaler is a plain dinner

napkin, pinned in the form of a cone. It is at once beautifully clean and safe, when the ordinary metal inhalers smell of decomposing organic matter, saliva, mucus, &c., of previous patients."—Professor Priestley, of King's College, London, has been appointed to attend the Princess Louisa of Hesse, on her approaching confinement. — Mr. Spence has been appointed Professor of Surgery in the University of Edinburgh, in lieu of Professor Miller, deceased. Mr. Lister closely contested the chair.

The Queen has been graciously pleased to signify her intention to confer the decoration of the Victoria Cross on the undermentioned officers of her Majesty's army, whose claims to the same have been submitted for her Majesty's approval, on account of acts of bravery performed by them in New Zealand, as stated against their names, viz:—Assistant-Surgeon William George Nicholas Manley, Royal Artillery, for his conduct during the assault on the rebel pah near Tauranga, New Zealand, on the 29th of April last, in most nobly risking his own life, according to the testimony of Commodore Sir William Wiseman, C.B., in his endeavor to save that of the late Commander Hay, of the Royal Navy, and others. Having volunteered to accompany the storming party into the pah, he attended on that officer when he was carried away mortally wounded, and then volunteered to return in order to see if he could find any more wounded. It is stated that he was one of the last officers to leave the pah. Assistant-Surgeon William Temple and Lieutenant Arthur Frederick Pickard, Royal Artillery, for gallant conduct during the assault on the enemy's position at Rangiriri, in New Zealand, on the 20th of November last, in exposing their lives to imminent danger in crossing the entrance of the Maori keep, at a point upon which the enemy had concentrated their fire, with a view to render assistance to the wounded, and more especially to the late Captain Mercer, of the Royal Artillery. Lieutenant Pickard, it is stated, crossed and recrossed the parapet, to procure water for the wounded, when none of the men could be induced to perform the service, the space over which he traversed being exposed to a cross-fire; and testimony is borne to the calmness displayed by him and Assistant-Surgeon Temple under the trying circumstances in which they were placed.

The tables of mortality for September and October are unavoidably omitted. They will appear in our next.

ABSTRACT OF METEOROLOGICAL OBSERVATIONS,

Taken at the Montreal Observatory, Latitude 45° 31' N. Longitude, 4h. 55m. 11s. W. of Greenwich. Height above level of the Sea 182 feet. For the month of September, 1864.

BY CHARLES SMALLWOOD, M.D., LL.D., D.C.L.

| Day of Month. | Reading of the Barometer, corrected, and reduced to 32° F. | | Reading of Thermometer. | | | Mean Tension of Vapor. | Mean Humidity of the Atmosphere. | General direction of Wind. | Horizontal movement in 24 hours in miles. | Mean extent of Clouds in 10ths. | Depth of Rain in Inches. | Depth of Snow in Inches. | Ozone in 10ths. | Weather, &c. | Remarks for the Month. | |
|---------------|--|---------|-------------------------|------|------|------------------------|----------------------------------|----------------------------|---|---------------------------------|--------------------------|--------------------------|-----------------|--------------|---|-------|
| | Highest | Lowest. | Mean. | Max. | Min. | | | | | | | | | | | Mean. |
| | Inches. | Inches. | Inches. | | | | | | | | | | | | | |
| 1 | 29.919 | 29.897 | 29.906 | 88.1 | 53.0 | 72.3 | .628 | W by S | 114.80 | 3.3 | ..... | ..... | 1.0 | ..... | Barometer .. | |
| 2 | .878 | .819 | .841 | 76.0 | 53.1 | 66.1 | .522 | N E | 99.30 | 9.6 | ..... | ..... | 1.3 | ..... | Lowest, the 7th day, 30.195 inches. | |
| 3 | .769 | .724 | .746 | 64.2 | 51.0 | 59.1 | .481 | N E | 60.09 | 10.0 | 0.089 | ..... | 2.6 | ..... | Lowest, the 15th day, 29.421 " | |
| 4 | .742 | .721 | .727 | 59.1 | 54.2 | 51.1 | .422 | N E | 139.29 | 10.0 | 0.942 | ..... | 2.6 | ..... | Monthly Mean, 29.753 " | |
| 5 | .906 | .867 | .889 | 69.2 | 48.2 | 58.0 | .455 | N E | 100.29 | 5.3 | ..... | ..... | 2.3 | ..... | Monthly Range, 0.774 " | |
| 6 | 30.069 | .960 | 30.019 | 88.0 | 48.0 | 67.9 | .575 | N E | 77.59 | 0.0 | ..... | ..... | 1.3 | ..... | Highest, the 6th day 88°0. | |
| 7 | .195 | 30.191 | .193 | 75.7 | 47.0 | 58.6 | .467 | W N W | 14.79 | 0.0 | ..... | ..... | 1.3 | ..... | Lowest, the 26th day, 32°9. | |
| 8 | 29.964 | 29.959 | 29.961 | 72.1 | 48.2 | 61.1 | .475 | N W | 54.34 | 6.6 | ..... | ..... | 1.0 | ..... | Monthly Mean, 58.91. | |
| 9 | .764 | .624 | .689 | 69.1 | 48.3 | 62.2 | .417 | S W | 90.40 | 8.0 | 0.031 | ..... | 2.0 | ..... | Mean of Humidity, .870. | |
| 10 | .684 | .553 | .596 | 61.2 | 48.1 | 58.4 | .428 | N W | 138.74 | 5.3 | ..... | ..... | 2.0 | ..... | Greatest intensity of the Sun's rays, 111°9. | |
| 11 | .673 | .641 | .654 | 65.9 | 54.2 | 60.1 | .457 | N E | 90.50 | 9.6 | ..... | ..... | 2.0 | ..... | Lowest point of Terrestrial radiation, 31°7. | |
| 12 | .757 | .616 | .705 | 56.2 | 49.4 | 50.3 | .352 | N E | 90.07 | 10.0 | 0.084 | ..... | 3.0 | ..... | Rain fell on 19 days, amounting to 3.482 inches, it | |
| 13 | .679 | .617 | .657 | 54.7 | 48.0 | 52.8 | .375 | N E | 152.20 | 10.0 | 0.171 | ..... | 3.0 | ..... | was accompanied by Thunder on 1 day. | |
| 14 | .611 | .576 | .597 | 50.9 | 46.8 | 55.9 | .407 | N E | 227.14 | 10.0 | 0.100 | ..... | 2.3 | ..... | Most prevalent wind, N. E. | |
| 15 | .500 | .421 | .454 | 58.1 | 54.2 | 56.1 | .445 | W S W | 33.50 | 10.0 | 0.100 | ..... | 2.3 | ..... | Least prevalent wind, N. N. E. | |
| 16 | .574 | .472 | .519 | 54.2 | 47.9 | 52.1 | .390 | W S W | 188.75 | 8.0 | 0.362 | ..... | 1.6 | ..... | Least windy day the 27th day, mean miles per hour, | |
| 17 | .860 | .779 | .814 | 72.2 | 43.3 | 58.8 | .480 | W N W | 103.25 | 1.3 | 0.034 | ..... | 2.0 | ..... | 10.54. | |
| 18 | .869 | .669 | .727 | 74.6 | 57.1 | 64.4 | .508 | W | 203.00 | 8.0 | ..... | ..... | 2.3 | ..... | Least windy day, the 15th day, mean miles per hour, | |
| 19 | .700 | .473 | .629 | 60.1 | 44.7 | 58.1 | .448 | S W | 120.70 | 10.0 | 0.162 | ..... | 2.6 | ..... | 1.39. | |
| 20 | .807 | .716 | .772 | 70.9 | 43.2 | 58.4 | .383 | W S W | 135.80 | 8.0 | ..... | ..... | 2.0 | ..... | Amount of Evaporation 1.17 inches. | |
| 21 | 30.011 | .873 | .922 | 60.2 | 33.7 | 50.1 | .423 | W S W | 79.40 | 8.0 | ..... | ..... | 1.6 | ..... | Aurora Borealis visible on 2 nights. | |
| 22 | 30.011 | .873 | .922 | 60.2 | 33.7 | 50.1 | .323 | N E | 82.68 | 5.3 | ..... | ..... | 1.3 | ..... |  |  |
| 23 | 30.730 | .696 | .646 | 81.0 | 64.1 | 65.6 | .575 | N by W | 100.26 | 7.6 | ..... | ..... | 1.0 | ..... |  |  |
| 24 | .521 | .507 | .515 | 69.4 | 63.4 | 64.2 | .544 | S by W | 142.49 | 7.6 | ..... | ..... | 2.0 | ..... |  |  |
| 25 | .714 | .510 | .625 | 55.9 | 46.1 | 51.3 | .327 | N E | 76.15 | 6.6 | 0.261 | ..... | 2.0 | ..... |  |  |
| 26 | .824 | .800 | .811 | 69.4 | 32.9 | 50.7 | .354 | N W | 124.40 | 1.3 | ..... | ..... | 1.3 | ..... |  |  |
| 27 | .604 | .583 | .595 | 76.4 | 37.4 | 64.6 | .764 | W | 271.95 | 4.6 | 0.140 | ..... | 3.0 | ..... |  |  |
| 28 | 30.061 | .603 | .833 | 76.9 | 48.4 | 65.5 | .541 | W | 191.49 | 6.0 | 0.064 | ..... | 1.3 | ..... |  |  |
| 29 | .068 | .690 | .842 | 62.3 | 40.9 | 55.5 | .362 | W | 108.56 | 9.6 | ..... | ..... | 2.0 | ..... |  |  |
| 30 | .100 | .804 | .968 | 61.1 | 43.0 | 51.6 | .343 | W | 224.60 | 3.3 | 0.812 | ..... | 3.3 | ..... |  |  |