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ART. XXXIV.—THE OPERATION OF THE TREPHINE AND ITS VALUE—MEDICO-LEGALLY CONSIDERED.

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The appearance of the following paper is due to circumstances arising out of the trial of a man named Beaucaire, indicted for the murder of one Rousseau, at the criminal term held in this city in March, 1844. Rousseau exhibited before death all the symptoms of compression of the brain from extravasated blood, in a most unequivocal manner. After receiving the blow of a poker on the left temple, and recovering from the stun or concussion consequent upon it, he repaired to the police station-house, a distance of about fifty yards from the tavern in which the altercation between the parties took place; there entered a deposition with the chief constable against his antagonist; returned to the tavern, and finally went to his bed in an upper room; events which occurred between 7 and 8 o'clock P.M. Early next morning he was found by the inmates of the house in his bed, insensible. About 7 A.M., a medical gentleman was summoned, who, finding him labouring under every symptom of compression, bled him freely, and adopted some other collateral treatment. About noon I was requested to visit him. He was completely comatose and evidently moribund. He died in half an hour after, after having been seen by a third medical gentleman, who also in consequence of his state did not deem any operative interference proper. There was a slight wound on the left temple. On examining it with a probe, I was not able to detect any fracture. An inquest was held on the body, which was attended by the two medical gentlemen alluded to. Their report states that a small fissure was observed about half an inch posterior to the external wound, and below this, between the skull and dura mater, a coagulum of extravaseted blood was found.

At the trial, a difference of opinion, as to the result of operative interference in the case, was expressed by the medical witnesses. I considered it "possible, but not probable," that the patient would have been saved had the trephine been applied; the other medical gentlemen testifying that they considered it not only "possible, but highly probable."

The difference of opinions thus expressed had a decided reference to the value of the operation in the particular case which called them forth; but at the same time this very difference of opinion has always, since that occasion, been deemed by me of sufficient importance to warrant an inquiry into the general question of the value of the operation, under any of the circumstances in which it may, or should be performed; and the remarks which I may have occasion to make are with the sole view of elucidating this point.

In regard to the employment of the trephine, modern surgery stands in striking contrast to that of the last century. Then an injury of the head, with the development of no more urgent symptoms than some "uncomfortable sensations," was a sufficient pretext for the operation; at the present day, the evidences demanding it require to be explicit, and the character of the cases is more restricted. We have learned, from the practice of former surgeons, in their indiscriminate employment of the instrument, the enormous loss which the bony protective covering of the brain may sustain without destruction of life. Modern surgery views these cases as exceptions to the rule, and instead of taxing the recuperative powers of the system to repair in many instances an additional injury, calls them to her aid in the first instance, and frequently succeeds in obviating the necessity of a direct operative interference. Time was, when the skull was unceremoniously perforated, to *prevent* inflammatory action after injury of the head. The time has come to know, that the probabilities of inflammatory action are thereby considerably *increased*. Time was, when every depression of the bony plate required *immediate elevation*. The time has come, and has demonstrated, that such an occurrence is not always incompatible with the *due performance of every cerebral function*, reprobating a too meddlesome practice. Time was, when compression from supposed extravasation was treated by an instant recourse to the trephine. Instances are not wanting demonstrative of the fact, that by the adoption of proper constitutional treatment, such accumulations have been apparently absorbed. In fine, instances of the operation are now as rare, as they for-

merly were numerous; while, so far as I have had an opportunity of judging, the mortality has not increased. The operation is now resorted to, as a "*dernier resort*," or else only when most unequivocally demanded; while in former times, it was regarded as almost the first step in the remedial treatment of the case.

The following are the chief circumstances which, according to the rules of modern surgery, justify the operation:—

1. Compression of the brain arising from extravasated blood.

2. Compression of the brain arising from depressed bone.

3. Irritation of the brain caused by spiculæ.

4. To evacuate pus.

Injuries of the head, even of the simplest description, are always to be regarded as of moment; especially if these injuries be attended with concussion, which is always followed by a greater or less extent of reaction. The imminence of the case is considerably increased, if symptoms of compression are developed, either primarily or secondarily. And although in cases of the first description, there rarely occurs a necessity for operative interference, unless it may be for the purpose of liberating purulent matter, one termination of the inflammatory action which may supervene unless the cases be properly managed, in those of the second description it is most usually imperiously demanded. If the practice of the old surgeons has been characterised by rashness in the use of the instrument, and a far too indiscriminate employment of it, it must be confessed that modern surgery has probably rushed into the opposite extreme, that of not resorting to it sufficiently often, and trusting too much to the recuperative powers of the system.

Blows on the head, attended with injury of the cranium, and symptoms of compression dependant on depression of the bone, or extravasation from a ruptured vessel, are by no means of unfrequent occurrence; and, as in the trial alluded to, a question affecting the value of the operation as a preservative of life, is frequently proposed to a medical witness. It is true, that in the non-performance of the operation under circumstances demanding it, and in which a fatal issue results, the position of the accused party cannot be affected, inasmuch as the operation, if performed, *might* have proved successful, yet, as it is always impossible to tell the extent of cerebral lesion, a great degree of doubt must, even under the most auspicious looking circumstances, attach to it, and should therefore modify the opinion demanded. But how far, or to what extent, should this modification or reserve be carried? And what are the data on which such an opinion should be founded?

It is asserted, in the first place, that such data cannot be furnished, with any degree of certainty, from the symptoms developed in any particular case. In examining the *post mortem* appearances presented by the cranial contents of persons dying after injuries of the head, this assertion will be found to be most substantially confirmed. If compression be the result of extravasation, that extravasation is not necessarily below the seat of injury. It is not unfrequently found at some distant part—on the opposite side of the head; or the extravasation may be met with in the ventricles, from a rupture of a portion of the choroid plexus. These are circumstances which must not be lost sight of. If the compression again be the result of a depressed bone, as extravasation most usually attends such an injury, the same train of remarks will apply; superadded to which we have to take into consideration, in consequence of the severer injury, the possibility of a lacerated cerebral substance, and more or less speedy formation of pus—a result of the inflammatory action with which such cases are almost certainly attended. Or if the compression be due to pus, where are the unerring signs to be found, so surely indicating its *locale*, as to permit us to say positively that by the application of the crown of the instrument, it *will* be liberated? Occasionally we may judge accurately; but is this always the case? Symptoms afford but fallacious evidence. They prompt certainly to the adoption of the operation, but afford no substantial ground on which to base anticipations of any positively favourable issue.

It is asserted, in the second place, that the operation itself is not devoid of danger. It may have been successfully performed, as far as the object to be attained is concerned, and yet may be inductive, by its very performance, of injurious consequences. A simple fracture is by the operation converted into a compound one; nor is the degree of a compound one by it lessened. Inflammation, with its consequences, is very liable to supervene; while a hernia is a by no means unfrequent consequent.

If, then, the symptoms of any particular case can furnish us with no sufficient evidence to warrant us in a conclusion respecting a successful application of the trephine, which is but another expression for its value; and if the mere operation itself be not unattended with danger, what are the data on which we may establish an opinion as to such value? Surely not on isolated cases in which the operation has been successfully performed; because it is exceedingly improbable that two individuals will suffer in precisely the same

degree, or to the same extent, from the infliction, even, of a blow of equal force; but from the results witnessed in an aggregation of like cases. Statistics must in this, as well as in other cases where an analogous result is desired, be brought to bear upon the question. It is the only method of arriving at a satisfactory conclusion; it is the only method of furnishing a just deduction.

With this latter object in view, I have, in the course of reading, collected a long series of cases in which the operation was performed. I have endeavoured to classify them as accurately as possible, by arranging them into four divisions according to peculiarities. The first class will be found to comprise those of fracture without depression, in which the trephine was employed for the sole object of liberating extravasated blood. Class the second, will comprise those of a more complex description, in which depression of bone was a prominent feature, attended with extravasation; the operation having been performed to elevate the depressed bone, and to liberate the extravasated blood. The third class will be found to comprise those cases in which the operation was performed to give vent to purulent collections. And the fourth and last class will be found to consist of miscellaneous cases. Remarks will be deferred until the whole series of cases is given.

CLASS I.—*Simple Injury with and without Fracture—Operation to Liberate Extravasated Blood.*

1	William Beacon	30	Compound fracture of temporal and parietal; coma; trephined to liberate extravasated blood on 3d day	Died	London Med. Gazette, vol. 1
2	A groom of Duc de Bourdeaux		Compound fracture of occipital; coma; trephined twice, second time on occipital bone, to liberate extravasated blood	Recovered	Dionis' Cours d' Operations
3	A young girl	9	Contusion of scalp, fracture of parietal; coma; trephined to liberate extravasated blood	Recovered	Do. do
4	A man, by Ledrau	22	Fracture of parietal; coma; trephined to liberate extravasated blood	Died	Saucerote sur contre coup; prix de l'Academie de Chirurgie
5	A corporal	13	Contused wound of parietal, with fracture; supervention of coma: trephined to liberate extravasated blood	Died	Do do
6	A boy	12	Wound of scalp; fracture of temporal; coma; trephined to liberate extravasated blood	Recovered	Do do
7	Lamotte's case		Slight contusion of parietal, fracture of temporal: compression; trephined to evacuate extravasated blood	Recovered	Do do
8	Mr. Chevrier	60	Contusion of right parietal; supervention of delirium, &c. &c.; trephined over seat of wound; extravasation found on opposite side	Died	Do do
9	A woman		Contusion of right parietal; coma; trephined to evacuate extravasated blood; none found	Died	Chopal sur contre coup; prix de l'Academie de Chirurgie
10	A carpenter		Contusion of scalp; fracture of parietal; supervention of coma; trephined on 11th day to liberate blood	Died	Quesnay's Mem. in Memoires de l'Academie de Chirurgie
11	Mouton's case		Separation of occipital suture from a blow; coma; trephined to liberate extravasated blood	Recovered	Do do
12	Dru's case (a child)		Contusion of right parietal, with fracture; supervention of coma; trephined on 4th day to evacuate blood	Recovered	Do do
13	A young man	22	Contused wound of vertex; fracture of temporal and occipital; trephined to liberate extravasated blood	Recovered	Do do
14	A young man		Contused wound of parietal; coma; trephined on 16th day to liberate extravasated blood	Recovered	Do do
15	Marechal's case (a man)		Contusion of scalp; fracture of parietal; trephined to liberate extravasated blood	Recovered	Do do
16	Peyronie's case (a child)		Contusion of scalp; coma; trephined to liberate extravasated blood	Died	Do do
17	A man (Adam's cases.)		Compound fracture of parietal; coma; trephined to liberate extravasated blood	Died	London Med. Gazette, vol. 22
18	A man (Adam's cases.)		Fissure of parietal and petrous portion of temporal; coma; trephined to liberate extravasated blood	Died	Do do vol. 22
19	J. Maynard (Adam's cases.)	57	Fissure of vertex, extending down to temporal; incomplete coma; trephined to evacuate blood	Died	Do do vol. 22
20	A man (Adam's cases.)		Compound fracture of os frontis; coma; trephined to evacuate extravasated blood	Died	Do do vol. 22
21	Ogle's case (a woman)		Trephined to evacuate blood after an injury	Recovered	Chelius' System of Surgery
22	C. D.	10	Fracture of occipital; trephined to evacuate extravasated blood	Recovered	Do do
23	R. L.	14	Injury at junction of parietal and occipital; trephined	Died	Do do
24	P. H.	7	Fracture of os frontis; trephined to evacuate blood	Recovered	Do do
25	S. W.	39	Injury on left parietal; absence of coma; trephined	Recovered	Do do
26	Lorimer of 42d Regt.		Fracture of right temple; trephined 14 days after to evacuate blood	Died	Do do
27	A labourer		Compound fracture of frontal and parietal; trephined	Recovered	Pott's Surgery
28	A girl	9	Compound fracture of parietal, extending to opposite; absence of all symptoms of compression; trephined	Recovered	Do do

29	A ferryman		Contused wounds of scalp; one lacerated; supervention of coma on second day; trephined to liberate coagulum on fourth and fifth days	Died	Potts' Surgery
30	A woman		Compound fracture of left parietal, extending to right; trephined on both parietals on 9th and 18th days	Died	Do do
31	A labourer		Concussion; no external mark of injury; incomplete coma; trephine applied over seat of tumour on right parietal, on 5th day, to relieve extravasated blood	Recovered	Do do
32	A boy		Severe lacerated scalp wound; no fracture; coma; trephined to liberate extravasated blood; none found	Died	Do do
33	Richard Garside		Compound fracture of parietal; supervention of coma on 6th day; trephined to liberate blood, which was found under dura mater	Died	Med.-Chir. Review, July 1842
34	A sailor		Compound fracture of skull; extravasation of blood; trephined on os frontis	Recovered	J. Bell's Surgery
35	Fontanus' case (a boy)	15	Contusion of scalp; fracture of temporal; trephined unsuccessfully to liberate extravasated blood	Died	Do do
36	A labourer		Contusion of scalp; fracture of temporal; coma, with slight convulsions; trephined to liberate extravasated blood	Died	Do do
37	A young man	30	Contusion of scalp; coma from extravasated blood; absence of fracture; trephined on both parietals	Recovered	Do do
38	Ducachet's case		Trephined for removal of extravasated blood; no fracture; blood found above and below dura mater; the latter opened	Died	Cooper's Surgical Dictionary
39	William Bowker	5	Contusion of scalp; fracture of parietal; coma; trephined	Recovered	Ryan's Medical and Surgical Journal, vol. 4
40	William Beacon	30	Compound fracture of temporal and parietal; compression from extravasated blood; trephined on third day	Died	London Med. Gazette, vol. 1
41	John Woolford	40	Compound fracture of left parietal; coma from extravasated blood; trephined to liberate blood	Died	Do do vol. 2
42	James Parker	22	Compound fracture with extravasation; trephined without benefit	Died	Do do vol. 2
43	—— Perry	73	Compound fracture of parietal; supervention of coma; trephined to remove coagulum	Died	Do do vol. 9
44	Mr P		Concussion; injury of right parietal without fracture; coma from extravasation; trephined	Died	Edinburgh Med. Jour., vol. 16
45	Charles A. Cameron.	14	Contusion of scalp; fracture of occipital; coma; trephined	Recovered	Medico Chirurg. Tran. vol. 2
46	A boy	13	Contused wound; fracture of frontal traversing parietal; absence of coma; laceration of dura mater; Hey's saw used	Recovered	Hey's Surgery
47	A coalman, by Boyer.		Compound fracture of parietal: coma; trephined to liberate extravasated blood	Died	Boyer's Surgery
48	A dragoon		Separation of sagittal suture from a fall; trephined to liberate blood	Recovered	Guthrie on Injuries of Head
49	A neighbour		Fracture of temporal; coma; trephined to liberate blood	Recovered	Oeuvres de J. L. Petit
50	A soldier		Contusion of head; coma; trephined on fifth day to liberate blood	Recovered	Do do
51	A mechanic		Coma consequent upon injury to occiput from a fall; trephined to liberate extravasated blood	Died	Do do
52	Ledraus case (surgeon)		Blow on left parietal; trephined in consequence of symptoms of irritation	Died	Injuries of Head by Guthrie
53	M. A. Farnham	23	Blow from stone on right parietal; paralysis; trephined on injured spot	Recovered	Do do
54	S. L.	40	Wound of skull on right parietal; fissure of bone; coma; trephined to remove coagulum; none found	Died	London and Edin. Monthly Journal, April 1844
55	M. G.		Simple fracture of left hind head; insensibility trephined twice to remove coagula	Died	Do do
56	J. C.	14	Fracture of right parietal; two pieces of parietal removed	Died	Do do
57	A grenadier		Trephined to liberate blood supposed to have induced coma; injury on head from bombshell	Recovered	Guthrie on Injuries of Head

CLASS II.—*Compound Depressed or Comminuted Fracture—Operation to Elevate Depressed Bone, Remove Spicula, or Liberate Extravasated Blood.*

1	James Hamilton	3	Depressed fracture of parietal; absence of symptoms of compression; trephined	Recovered	Edinburgh Med. and Surg. Journal, vol. 12
2	William Newenhen	14	Compound depressed fracture of parietal; coma; trephined	Recovered	Do do vol. 14
3	W. H.		Compound depressed fracture of temporal and parietal; laceration of meninges; absence of coma; trephined	Recovered	Do do vol. 16
4	Thomas Riggs		Compound comminuted depressed fracture of parietal extending to frontal; loose bones removed by forceps, and elevator employed	Recovered	Med. Chir. Trans., vol. 2
5	A boy	12	Depressed fracture of occipital; trephined	Died	Do do vol. 8
6	A boy	11	Depressed fracture of frontal; trephined, and Hey's saw used	Recovered	Do do do
7	A boy	13	Depress ed comminuted fracture of frontal; trephined	Died	Do do do

8	A young woman		Depressed fracture of cranium; trephined; died three months after from fungus, from a rupture of the cicatrix	Died	Do	do	do
9	A boy	10	Compound depressed fracture of parietal; supervention of coma; trephined	Recovered	Do	do	do
10	Christopher Topham	14	Depressed fracture of right parietal; absence of coma; Hey's saw alone used	Recovered	Hey's Surgery		
11	A boy	10	Compound depressed fracture of frontal; symptoms of compression; Hey's saw	Recovered	Do		
12	James Dunkinson	12	Compound depressed fracture of frontal; Hey's saw used	Recovered	Do		
13	A boy	8	Contusion of vertex; longitudinal sinus wounded by spiculæ; trephined	Recovered	Pott's Surgery		
14	A girl		Compound depressed fracture of parietal; coma; trephined	Died	Do		
15	A servant		Compound depressed fracture of frontal; coma; trephined twice on 1st and 11th days	Recovered	Do		
16	A child	9	Contusion of scalp; depressed fracture of frontal; coma; trephined to elevate; a second time to liberate extravasated blood	Recovered	Do		
17	A young woman		Concussion; coma; application of trephine to painful spot; operation repeated to remove depressed inner table	Died	Do		
18	Biddie Drummond	7	Punctured fracture of occiput in mesial line; puncture of sinus; incomplete coma; trephined to elevate	Died	Med. Chir. Review, Oct. 1841		
19	Robert Blake	27	Gunshot wound; depression of bone below lodgment of bullet behind right ear; absence of symptoms of compression; trephined to elevate	Died	Do.	do	April 1841
20	Boy		Compound comminuted depressed fracture of frontal; trephined; in a note by C. Bell	Died	J. Bell's Surgery		
21	O'Hallaran's case (a girl)	7	Depressed fracture of left parietal; absence of coma; trephined four times, using levers	Recovered	Do		
22	Hill's case (the boy Cameron)	6	Depressed fracture of frontal; coma and convulsions; trephined to elevate, but unsuccessfully	Recovered	Do		
23	Patrick Casey		Depressed fracture of frontal; trephined twice; related by O'Hallaran	Died	Do		
24	A man		Depressed fracture of parietal; trephined once to liberate extravasated blood; a second time to elevate	Recovered	Do		
25	A sailor	14	Depressed fracture of frontal; incomplete coma; trephined to liberate extravasated blood	Recovered	Do		
26	Billy Cameron	12	Punctured wound with deep depressed fracture; trephined to elevate	Died	Do		
27	Benjamin Prime	18	Compound depressed fracture of parietal; trephined	Recovered	Am. Jour. Med. Science, 1843		
28	Soldier 44th regiment		Struck by musket ball; no external fracture; compression; trephined; inner table splintered and driven into brain	Recovered	Cooper's Surg. Dic.		
29	A child (Warner)		Wound of frontal; depressed fracture of both parietals; trephined; a splinter in longitudinal sinus, which was enlarged	Died	Do		
30	A soldier, by Cooper		Trephined to remove a splinter from the inner table driven into the brain	Recovered	Do		
31	Edward Morris	14	Compound depressed fracture of parietal; coma; trephined to elevate	Recovered	Do	do	do
32	James Fagan	23	Sword wound through parietal to substance of brain; incomplete coma; removal of depressed piece of bone by saw	Recovered	Do	do	do
33	Patrick Kelly		Compound depressed fracture; coma; trephined to elevate	Recovered	Do	do	do
34	William Clark	13	Compound depressed fracture of left parietal; incomplete coma; operation to elevate depressed portion	Recovered	Do	do	do
35	John Williams	13	Compound depressed portion of parietal; absence of symptoms of compression; Hey's saw and elevator	Died	Do	do	do
36	Christiana Brown	4½	Depressed fracture of temporal; compression; Hey's saw and elevator	Recovered	Do	do	do
37	Brodie's case (old man)	12	Depressed fracture of parietal; trephine applied by Mr. Gunning	Died	Do	do	vol. 2
38	Benoit's case (artillery-man)	50	Compound depressed fracture of parietal and occipital from gunshot; trephined four times on sagittal and lambdoidal sutures	Recovered	Quesnay's Memoire		
39	Volpilier's case (a man)		Compound depressed fracture of parietal and temporal; trephined twice	Recovered	Do		
40	Belair's case (a man)		Punctured and fractured wound of cranium; removal of spiculæ; abscess within the brain	Died	Do		
41	Montoville's case (lady)	30	Compound fracture of frontal; removal of spiculæ; a splinter found in substance of brain of opposite side	Died	Do		
42	Marechal's case (man)		Compound fracture with puncture of brain by spiculæ; splinter removed	Died	Do		
43	Peyronie's case (a man)	17	Compound fracture of parietal; splinters in brain; trephined to remove splinters; abscess discovered and opened	Died	Do		
44	A young boy	11	Compound depressed fracture of parietal; coma; trephined to elevate	Recovered	Gama, traité de plaies de tete		
45	R. F.	13	Depressed fracture of parietals over sagittal suture; trephined	Died	Warner's cases in Surgery		

46	H. A.	18	Fracture of occipital, with depression of one of the ossa triquetra; trephined twice	Recovered	Warner's cases in Surgery.
47	J. C.	5	Depressed fracture of frontal; coma; trephined to elevate	Recovered	Do do
48	J. W.	14	Depressed fracture of frontal at anterior fontanelle; trephined twice	Died	Do do
49	M. F.	53	Fracture of left parietal; depression of frontal; trephined to elevate and evacuate blood	Recovered	Do do
50	J. P.	7	Depressed fracture of frontal; coma; trephined to elevate and evacuate blood	Recovered	Do do
51	L. B.	50	Severe fracture, with depression of parietals; trephined 3 times	Recovered	Do do
52	Charles Murray	33	Comminuted fracture of parietal from a shell; trephined twice	Recovered	Injuries of head affecting the brain, by J. G Guthrie
53	William Mitchell	40	Depression of both parietals along the sagittal suture; from musket ball; trephined twice	Recovered	Do do
54	A French artillery driver		Depressed fracture of left parietal; trephined to remove coagulum	Died	Do do
55	Stultetus' case (officer)		Depressed fracture of vertex; trephined six weeks after; died suddenly three months after operation	Died	Do do
56	Home's case		Fissure of skull, with depression of inner table; pain in head; trephined	Recovered	Do do
57	Dudley's case		Comminuted fracture of skull from musket ball; supervention of epilepsy; trephined	Recovered	Do do
58	French soldier		Depressed portion of skull from a sword cut; epilepsy; trephined	Recovered	Do do
59	British soldier		Depressed portion of vertex from sword cut; trephined	Recovered	Do do
60	William Myddleton	40	Incised depressed fracture of vertex, caused by an axe; absence of all symptoms of compression; trephined to elevate	Recovered	Do do
61	Liston's case	11	Incised wound of forehead; loss of speech after one month; trephined to remove bone pressing on dura mater	Recovered	Do do
62	Roux's case		Depressed fracture of parietal; symptoms of irritation increasing; trephined	Died	Do do
63	Gooch's case (gentlem.)		Head wounded by bursting of a gun 30 years previously; trephined twice to remove bone	Died	Do do
64	Soldier, 48th Regiment		Trephined to liberate musket ball, entering at frontal bone	Died	Do do
65	Bernard Duffy		Depressed fracture of frontal; trephined to elevate	Recovered	Do do
66	A soldier		Depressed fracture of upper part of lambdoidal suture; trephined to elevate	Recovered	Do do
67	Thos. Welch	27	Depressed fracture of left temporal; stupor; several pieces of bone removed	Died	Do do
68	Gooch's case (man)	61	Depressed fracture of parietal and temporal bones; trephined 13 times	Recovered	Do do
69	Evan's case (labourer)		Contused wound, with fracture of parietal; trephined 12 times to elevate and remove depressed inner table	Recovered	Do do
70	A woman		Depressed fracture of parietal; coma; trephined 3 times to elevate	Recovered	Ouevres de Petit
71	Child	9	Depressed fracture of cranium; coma; trephined to elevate	Recovered	Do
72	A man		Depressed fracture; trephined to evacuate extravasated blood	Died	Do
73	Thomas Butler	11	Compound depressed fracture of parietal; rupture of meninges; coma; trephined	Died	London Med. Gazette, vol. 2
74	Daniel M'Leod	11	Compound depressed fracture of parietal; trephined to elevate	Recovered	Do do vol. 2
75	D. M'Millan	40	Compound depressed fracture of parietal; partial paralysis; trephined	Died	Do do vol. 3
76	J. Turner	63	Extensive fracture of all the cranial bones; extravasation; coma; trephined	Died	Do do vol. 3
77	Jas. Diamond	48	Compound depressed fracture of parietal; raised by elevator, and removed	Died	Do do vol. 4
78	Edward Young	18	Compound depressed comminuted fracture of frontal; escape of brain; absence of coma; trephined	Died	Do do vol. 5
79	Patrick May	34	Compound depressed fracture of frontal; supervention of coma; elevation of depressed portion by Hey's saw	Died	Do do vol. 6
80	John F. Areford	42	Depressed fracture of temporal; removal of bone by elevator and forceps 5 weeks after accident	Died	Do do vol. 8
81	Thomas Garlic	21	Compound depressed fracture of parietal; symptoms of irritation; trephined to elevate	Died	Do do vol. 13
82	Robert Dixon	20	Compound depressed fracture of parietal; coma from extravasated blood; trephined	Recovered	Do do vol. 15
83	J. Savage	10	Depressed fracture of occipital; depressed portion elevated, after removal of a portion by Hey's saw	Recovered	Do do vol. 16
84	John Jones	20	Compound depressed fracture of frontal; trephined to elevate	Recovered	Do do vol. 16
85	A man		Compound depressed fracture of frontal and occipital; loose depressed portions removed, permitting escape of pus and blood	Died	Do do vol. 20

86	A young man		Compound depressed fracture of frontal; trephined to remove splinters and depressed bone	Died	London Med. Gazette, vol. 20
87	Thomas Cullow		Depressed fracture of temporal; coma; trephined to liberate extravasated blood	Died	Ryan's Med. and Surg. Jour., vol. 4.
88	A young gentleman		Contusion of scalp; depressed fracture of parietal; coma; trephined to elevate and liberate extravasated blood	Recovered	Dionis' cours d'Operations
89	A man, by Murray		Contused wound of parietal; suspected fracture of inner table; coma, with convulsions; trephined	Recovered	Saucerote sur contre coup prix de l'Academie de Chirurgie
90	Case of Collin		Compound depressed fracture of frontal; trephined to elevate and liberate extravasated blood	Died	Do do
91	A young man		Compound depressed fracture of left parietal; coma subsequent to insensibility and paralysis of left side; trephined to elevate and liberate blood	Died	Chopal sur contre coup prix de l'Academie de Chirurgie
92	Pineau's case	12	Compound depressed fracture of os frontis; trephined to elevate and liberate blood	Recovered	Do do
93	Wood's case (Fr. capt.)		Trephined to remove a pistol bullet lodged in frontal sinus	Recovered	J. Bell's Surgery
94	Larrey's case (soldier)		Frontal bone trephined for removal of a musket bullet; three perforations made	Recovered	Cooper's Surg. Dict.
95	Do do do		Lower part of temporal, near mastoid process, trephined to remove a bullet	Died	Do do
96	Do do do		Musket bullet penetrating parietal, and passing to lambdoidal suture; trephined; bullet removed, with escape of blood	Died	Do do
97	Schmucker's case		Trephined for removal of a piece of gun barrel	Recovered	Do do
98	A Fren. artillery driver		Depressed fracture of left parietal; trephined to remove coagulum	Died	Guthrie on Injuries of Head
99	British soldier		Depressed portion of vertex from sword cut; trephined	Recovered	Do do
100	Hennen's cases		Gunshot wounds with fracture; trephined	Recovered	Hennen's Military Surgery
101	Do do			Died	Do do
102	Do do			Died	Do do
103	Beiaire's case (man)	29	Punctured and fractured wound of cranium; removal of spicula; (abscess within brain)	Died	Quenay's Memoir
104	A young man	23	Contused wound of parietal; fracture by contre coup of parietal and frontal; coma and convulsions; trephined to remove splinters and liberate blood.	Recovered	Saucerote sur contre coup
105	Young woman, by Pott		Detachment of inner table; convulsions; trephined several times	Died	Chelius' System of Surgery
106	Case, by Garanget		Wound in left parietal; convulsions; suspected detachment of inner table; trephined; blood evacuated	Recovered	Do do
107	Tulpius' case of J. Buxius		Musket ball in occiput; convulsions; trephined to evacuate blood; suspected detachment of inner table	Died	Do do
108	Trye's case		Detachment of inner table of right parietal; trephined nine weeks after accident	Recovered	Do do
109	Andouille's case		Fracture of right parietal from musket ball; trephined in absence of urgent symptoms	Recovered	Do do
110	James Fagan		Sword cut on right parietal; convulsions and stupor; detachment of inner table; Hey's saw used	Recovered	Do do
111	A soldier		Coma consequent on injury to parietal from musket ball; trephined to liberate coagulum; none found	Recovered	Guthrie on Injuries of Head
112	A man, by Tulpius		Gunshot wound with fracture of inner table of skull; trephined	Died	Saucerote sur contre coup
113	A soldier		Bullet wound in occiput; fever and eventual coma; trephined to liberate supposed extravasated blood; none found	Died	Œuvres de J. L. Petit
114	L. B.	30	Severe fracture with depression of parietals; trephined three times	Recovered	Warner's Cases
115	Charles A. Cameron		Depressed fracture of occipital; coma; trephined same day to elevate depressed bone; dura mater punctured	Recovered	Hutchinson's Surgical Observations
116	H. S.	23	Simple fracture with depression, at junction of parietal with temporal; detached portion removed by forceps	Died	Lond. and Ed. Monthly Jour., October, 1843
117	J. C.	11	Simple fracture of left temporal with depression; fits of insensibility; trephined to elevate.	Died	Do do
118	J. C.	6	Depression of left half of frontal; coma; trephined to elevate	Died	Do do
119	P. M.	32	Compound depressed fracture at upper part of left temporal fossa; trephined to remove coagulum; and bone removed by Hey's saw	Died	Do do
120	D. R.	27	Simple depressed fracture of left parietal; coma; trephined to elevate	Died	Do do
121	J. M'R.		Compound depressed fracture in vertex; stupor; bone raised by forceps, and Hey's saw	Died	Do do
122	W. H.	20	Compound depressed fracture of left parietal; cloth forced into fracture; absence of coma; trephined and Hey's saw used	Died	Do do

ART. XXXV.—IRISH EMIGRANT FEVER.

To the Editor of the British American Journal of Medical and Physical Science.

SIR,—Should you conceive the following remarks, in reference to the statistics of the emigration of the past season, and the decimating disease attendant and consequent upon it, of sufficient value to entitle them to a place in your journal, I shall feel obliged by your inserting them, in the hope, that from the unfortunately ample opportunities afforded to most of the members of our profession throughout the province, of observing and treating this disease, they may be induced to submit, through the same channel, either the results of their experience with regard to its treatment, their views as to its pathology, or, at all events, any of the peculiarities, complications, or sequelæ noticed by them in their intercourse with the unfortunate subjects of it.

I have the honor to be,
Yours obediently,
FRANCIS BADGLEY, M.D.

Fellow of the Royal Medical and Chirurgical Society of London, Lecturer on the Principles and Practice of Medicine, and on Clinical Medicine, in the Incorporated School of Medicine of Montreal, &c. &c.

On the 10th November last, A. C. Buchanan, Esq., Chief Agent of Emigration for Canada, published a return of the number of emigrants who had embarked at the various ports of the United Kingdom and Germany during the season of 1847, up to that date, as compared with the total number who had sailed during the season of 1846. The same document contained also an approximative report of the number who had arrived at the ports of Quebec and Montreal; of those who had died on the voyage; and, lastly, of those who had sunk under disease subsequently to their leaving their respective ships, and in the two cities above named. I need not suggest to your readers the immense amount of information which that document conveys to them, nor need I offer any commentary on the various matters for serious and anxious consideration which it presents to every medical man who regards his profession as something more than a mere means of livelihood. Allowing each mind to wander as it listeth, in the multifarious channels opened out for investigation by the subject of my communication, I confine myself, in reference to the document before me, to drawing the attention of our medical brethern, 1st, To the enormous visible increase in the amount of emigration of last year, when compared with that of the previous one. In 1847, to the 10th November, the number of emigrants who sailed from Europe was 98,106, while in 1846 the total number was 32,753.

Now, on this point, it would be totally out of place to offer any remarks that might, nevertheless, come appropriately enough home to the statesman, the philanthropist, or the mere man of business; but to the medical man, what a range of thought and reflection does it not light up as to its influence on future epidemics and endemics in this our young country? What changes may not be effected by it on the physical and social conditions of our countrymen? What may not be its effect on the probable duration of life in Canada?

2d, I would direct attention to the evident increase in the number of emigrants who sailed from Ireland direct, during the past, as compared with the previous year. In 1846, the aggregate number is stated to have been 21,049, while to the same date (10th November) of 1847, it amounts to no less than 54,329; but this number admits of a very large addition being made to it from among those reported to have sailed from English ports. This class amounted in 1846 to 9163, while the number for 1847 is set down at 32,328. But I venture to affirm, and I think my source of information good, that at *least* five-eighths of that number were natives of Ireland, shipped at English ports, and principally from Liverpool, during the earlier months of the season; from which it may safely be inferred, that the total number of emigrants from Ireland in the past year, is, at *least*, 74,539. And of these how many are distributed through this province—how many possess means, either bodily or pecuniary, sufficient for supporting their families, by labour on the public works or in private enterprises, as on farms, in such a manner as would in time, through improved pabulum furnished to their vitality, eradicate the effects of the frightful starvation to which they were exposed in their fatherland? I can state from authentic sources of information, that the number of souls forwarded upwards from Montreal, at the expense of government, from the 20th May to the 10th November past, was 38,800; but this is to be deducted from the grand aggregate, 98,100. True, so also must we deduct almost the whole of the 7697 from Germany; a very large proportion of the 3752 from Scotland; a very considerable proportion of the three-eighths to be looked upon as having started direct from English ports, but still not to be regarded even in this view as native English; the whole of the deaths by shipwreck, during the voyage, at the quarantine station, and in the cities of Quebec and Montreal. Let us, then, assume that the number so distributed through Canada amounts to 50,000. There must be at least of this number 15,000 infants, children, widows, old men, and infirm persons, who

cannot work. Is there employment on the public works for half of the remainder? or can they work, provided this be procured for them? I trow not. Their condition is that of depression, mental and physical. They are in the state which the commissioners, in making their report to the French government, in 1846, on the plague and quarantine laws, employ as their definition of plague, "a disease of the whole organism, in which the nervous, sanguineous, and lymphatic systems are especially affected." My position holds good, then, *they cannot work, because they are not able.* And what must be the result? To a great extent here, as in their native country, there must be want, congregation in badly aired and unclean tenements, disease, death, and propagation of disease. And what is the corollary of all this? Methinks, I already hear of the necessity of providing for the poor, the establishment in the principal towns of houses of industry, local taxes to be raised, and eventually the necessity of passing a poor law for Canada, this country of unexplored acres!

3dly, The number who are reported to have died during the passage last year, is 5293; but does this include all the deaths which occurred on board the vessels while lying at the quarantine station? for at one period of the season it was confidently asserted, and I believe with great truth, that there were many thousands of sick afloat, for whom there was no accommodation whatever at Grosse Isle. Then of the 8563 admitted into the quarantine hospital, 3452 are said to have died, giving us an average of 40 per cent., and of those who were taken into the Marine and Emigrant Hospitals at Quebec, or who had procured private lodgings in that city up to the 9th October, there died 1041. The numbers who landed at, or were taken on shore at Quebec, is not given, consequently no approach at an average of mortality in that city can be arrived at; but from the foregoing numbers just given, we have an aggregate amount of deaths up to the period of the survivors being put *en route* for Montreal, of 9786, giving us an average thus far of over 10 per cent. Now, I regret to feel myself compelled to offer it as my opinion, from my personal knowledge of the effect of the overwhelming inundation of sick at the hospitals, and in certain districts of this city, during the early period of the season; from the fact of numbers of the medical attendants being daily incapacitated (from sudden invasions of the disease in their own persons) from making any returns of deaths; from these circumstances, I repeat, it is my own opinion, that the average above given would approach more nearly to the true one, if it were set down at 11½ or 12 per cent., and the same remark will apply with equal force to the average of deaths in this city, notwithstanding the altered circumstances in which the emigrants found themselves on their arrival here.

4th, The number who are reported to have *died* in the Emigrant Hospitals and the city of Montreal, including, it is to be presumed, the Montreal General Hospital, Hotel Dieu, and the various orphan asylums, up to the 1st November, is 3579, but being enabled to state the number of admissions and deaths at the Emigrant Hospital of this city, to the 4th December last, without, for the reasons already given, desiring it to be understood, that the numbers which I am about to give ought not to be increased or otherwise modified; I will transcribe the contents of a note received by me from Dr. Liddle, our very intelligent, zealous, and effective medical superintendent at Pointe St. Charles, on this subject, and taken from the register which has been regularly kept at that establishment ever since the emigrants were removed to that place: "The admissions into hospital to the 4th December, were 10,063, and the deaths to the same date amounted to 3144; but since making these returns, I have found the names of many more admitted and dead, which are *now* being registered;" giving us an average of the mortality at that establishment alone, of more than 33⅓ per cent.; but even these numbers cannot be declared strictly correct. What do these aggregates of mortalities show us? I mean to the time when the survivors left or were forwarded hence, either up the country or to the neighbouring states, but an average of nearly 14½ per cent.; but I must take the liberty of stating, that this would be more correct, in my humble opinion, if transferred into *sixteen and a half* or *seventeen* per cent.; and how many foci of contagion have been established between Montreal and Hamilton or London westward?

The first cases of fever were admitted into the old sheds' hospital, at Wellington Bridge, on the 26th May; the largest mortality on any single day during the season, occurred on the 4th July, when there were reported dead, 54; the smallest number of deaths was on the 30th September, when there were only 6. I mean, of course, during the period of the navigation being open, and while emigrants were being forwarded to Montreal from Quebec. There was a very sensible diminution in the rate of mortality immediately on the admission of the patients into the new hospitals at Point St. Charles, which began on or about the 1st August.

I cannot conclude these remarks without tendering to A. C. Buchanan, Esq., my most sincere thanks for the promptitude with which he caused his immigration return to be published, and for the mass of information

contained in it. To the members of our profession, such information is always of paramount importance, but especially during visitations like that to which we have lately been subjected, and in which not only our own lives, but those of our families, friends, and neighbours have been placed in such imminent jeopardy. If by the publication of such statistical returns, the attention of our profession can be attracted with earnestness to the subject-matter of them; if, by their means, incentives are started for more close and philosophical examination into the causes and circumstances which tend to favour death in such or other cases; and if they be instrumental in suggesting more proper hygienic, as well as remedial means for the management of any future but similar dispensation, or for the solution of questions connected with our present condition—all of which I maintain that statistical information is calculated to do—then let the members of our profession in Canada join heart and hand together in supplying these data whenever they are available, and an incalculable amount of most valuable knowledge will be acquired in reference to the diseases which may almost be regarded as endemical in this province.

The extent over which these remarks have spread, precludes the possibility of my entering at present upon the second matter referred to in my letter; I mean the disease introduced into and wafted through Canada by means of the unfortunate subjects of the above observations. Having, as one of the Emigrant Medical Commissioners appointed by the Executive last summer, had many opportunities of studying the disease in all its forms, at the hospitals, both on the banks of the canal, and at Point St. Charles; having from the 1st November to the present time been one of the attending medical officers and clinical teachers at the Montreal General Hospital; and having also, in that capacity, with a view to verify the diagnosis given by me to the pupils who accompanied me in my daily visits through the wards, made post-mortem examinations in almost every fatal case which occurred under my treatment, I shall request, at some future time, a space in your journal for the insertion of various facts and notes which I had purposed to have submitted to you for insertion in this number, on the "Irish Emigrant Fever," so aptly named, and so correctly described by Professor Drake, of the University of Louisville, Ky., in the 1023d number of the *Boston Medical and Surgical Journal*, and by F. W. Sargent, M. D., in his article transferred from the *American Journal of Medical Science* to the December number of your Journal.

Montreal, January 18, 1848.

Art. XXXVI.—ASIATIC CHOLERA.

By George Douglas, M.D., Quebec, Medical Superintendent Quarantine Station.

I read with much interest an article in the last number of the *B. A. Journal*, on the advance of cholera, with suggestions for its treatment by Mr. L. W. Bell. The opportunity which this gentleman had of witnessing this disease in Persia in 1842, appears to have been turned by him to good account. It is not fair, however, to permit him to claim the merit of being the first to discover the analogy between cholera and ague. I need only remind you of Dr. Kennedy's work first published in Calcutta in 1826, in which this theory is announced, and in which is expressed a decided opinion that epidemic cholera was no new disease, but probably as old as any other pestilence, and as likely to occur again.

Accident first led Dr. Kennedy to observe the identity of the two diseases. He relates three cases in which he was applied to by patients in what both he and themselves mistook for the incipient stage of ague, but which was in reality that of cholera; three cases were treated by blood-letting, and all recovered. The use of the lancet in the cold stage of intermittent, as first recommended by Dr. M'Intosh, would appear to have a potent effect, and the great benefit following the administration of *monster* doses of quinine, would seem to confirm the views of the American Army Surgeon, whose treatment of ague with large doses of this drug was lately published. The absence of spasms in ague, as well as the fearful collapse, may be accounted for from the greater nervous derangement in cholera.

Now, with reference to the *vexed question* of the contagious or non-contagious nature of this disease, it would be well for medical men, generally, to give the evidence, *pro* and *con*, their most serious consideration. In all human probability we shall be again visited with this epidemic in a few months, and it would serve a good purpose to prepare the public mind for it. Fear, all know to be a great predisposing cause, and in the two former visitations of this scourge, many contracted the disease and died, who, if they had been taught to look upon it as dependant upon atmospheric causes, or the electrical effects of subterranean action, or anything but contagion, would have had no more fear than people whose business takes them to places where ague prevails. To assert that cholera is contagious in the same degree as typhus fever or small pox, is against all observation and experience. We know that on its first appearance in this country in 1832, it broke out simultaneously in Quebec and Mon-

treal, passing over the Quarantine Station at Grosse Isle, where, as far as I can learn, not a single case occurred throughout the season; and out of the 52,900 emigrants who came to this country that year, there was no unusual sickness or mortality on the voyage.

The writer of this was entrusted with the organization and superintendence of a Quarantine establishment in the district of Gaspè, in 1832. All ships from Europe, as well as coasting vessels, were bound to repair to one harbour where they were inspected. During the prevalence of the epidemic, schooners and small craft arrived almost daily from Quebec, some of these were crowded with passengers, among whom cases of cholera and deaths from this disease took place on the passage down, yet not a single case was seen in the district or among the passengers of these vessels when once landed. Contrast this with typhus as witnessed last year upon a grand scale, and every year more or less at Grosse Isle. How few escaped who came in contact with the sick emigrant; and how completely it ran through a passenger vessel when once it broke out. One-fifteenth of the Irish emigrants died on ship board, and nearly one-tenth were found ill on arrival. Out of twenty-six medical men employed in attendance at the hospitals at Grosse Isle during the past season, twenty-two contracted fever; it was equally severe upon the nurses and hospital attendants. In 1832 and 1834, the proportion of clergy and medical men who suffered from cholera, was not greater than that of other professional men whose duties did not bring them in contact with the sick; the same remark holds good with the nurses and attendants in cholera hospitals who were not found to suffer more than those who never saw a case. In the Hotel Dieu at Paris, there were two men whose particular duty it was to remove and strip the bodies of those dying in the hospital; during the first cholera these men were known to have handled upwards of three thousand bodies, and neither suffered from cholera. I saw them in 1834, healthy and actively engaged in the same *cheerful* occupation. How differently do we find the nurses in fever hospitals affected. At Grosse Isle so severely and certainly are they attacked, that for some years we have carefully abstained from engaging any but emigrants convalescent from fever; last year when obliged to deviate from this rule, few of the fresh hands escaped.

Quebec, January 18, 1848.

Art. XXXVII.—EMPLOYMENT OF CHLOROFORM.

By A. F. Holmes, M.D.,

Prof. of the Theory and Practice of Medicine, McGill College,

The following is, so far as I know, the first example of the employment of chloroform in this Province, and, as such, without any other claim to notice, may deserve to be recorded.

I was called at three o'clock this morning to attend Mrs. ———, in labor of her first child. The patient was a delicate, nervous young person, whose health from childhood had been very infirm, and who suffers from spinal irritation and its usual multiform accompaniments. On examination, I found the head low in the pelvis, in Rigby's first position, and the os uteri fully dilated. The waters had drained off without the patient having been aware of it. She had had slight pains all the preceding day, and latterly they had become stronger and frequent. The head slowly descended, but, when about to occupy the external outlet, made no further progress though the pains were strong and forcing.

After having waited some time in vain, expecting an advance, while the patient's sufferings were great, and not wishing to have recourse to the forceps, if it could be avoided, I resolved to endeavour to moderate her sufferings by the use of the chloroform, feeling confident that a short time would terminate the labour. Accordingly, I sent to Messrs. S. J. Lyman & Co.'s, who had informed me they had made some of the preparation; but, by some mistake, only about three drachms were sent. I immediately proceeded to administer this, by pouring a portion on a cambric handkerchief, which was then laid over her mouth and nose. She complained of its burning and choking her, and endeavoured to escape from it; and, in consequence, the application of the remedy was very inefficient, and no insensibility was induced, even after the whole of it had been expended. She said, however, that she did not feel so much pain as she had previously done. Having sent for an additional quantity of the chloroform, I took a small sponge, and, having poured on it some of the fluid, held it close to the mouth and nostrils. She seemed at first averse to allow its application from its choking her: but, being persuaded, soon became quiet, and in two or three minutes fell into what appeared a heavy slumber. The labour pains were evidently retarded, the interval between them being much increased; but when they came on, although all the usual appearances of strong action were manifested, she continued to sleep, and did not complain. The inhalation was continued for some time, but, finding no advance of the head, I resolved to apply the forceps, hoping she might remain under the soporific influence of the medicine; but, having expended all I had, she soon awoke, and was quite conscious during the application of the instrument, which was made with great ease; and, by its assistance, the head was delivered

in the next pain, a little before 9 o'clock A. M. The reason of the tediousness became evident by the delivery of a very large male infant. The patient said, as she was being placed in the position for the operation, that she had been insensible; and subsequently she has told me, that for at least a part of the time she heard what was said, but was unable to speak. The chloroform has irritated the parts to which the sponge was applied, and they are red and smarting.

January 25, 1848.

Jan. 26.—Both mother and child are doing well.

PRACTICE OF MEDICINE AND PATHOLOGY.

Endemic Gastro-Follicular Enteritis; or "Summer Complaint" of Children, as it prevails in the United States.—By Edward Hallowell, M.D., Fellow of the College of Physicians of Philadelphia, Member of the Academy of Natural Sciences, &c.—Cholera Infantum, or the "summer complaint" of children, has been considered peculiar to the United States. Billard, in his work on the diseases of infants, alludes to its occasional existence in Paris. In the United States it prevails to a great extent, and the mortality from it is extreme. It occurs in our large cities, carrying off several thousand children annually; it commences in the Southern States in May, and in the Middle and Western about the beginning or middle of June, and continues until near October, the greater number of cases being observed in July and August. It is found chiefly in the lanes and alleys of our large cities among the poorer classes of society, but those in the higher ranks are by no means exempt from its attacks. It is stated by Dr. Condie, that during a period of fifteen years, from 1825 to 1839, inclusive, 3,352 infants perished of this disease in Philadelphia, being almost ten per cent. of the whole number of infants under five years who died during that period. In St. Louis, Missouri, during the years 1841, '42, and '43, 238 children died of it. In 1823, 253 died of the same complaint in Baltimore. The average number of deaths annually in Philadelphia is about 200. The disease is confined almost exclusively to children between four and twenty months of age; cases, however, occur as early as the age of two months, and at as late a period as three or five years.

Causes of the disease.—Cholera infantum is considered to be dependent for its production upon a heated, confined, and impure atmosphere, acting "directly upon the skin, and indirectly upon the mucous surface, at a period when the latter is already strongly disposed to the disease from the effects of dentition, and from the increased development and activity of the muciparous follicles which takes place at that period." The circumstances of its origin, however, are involved in doubt, and can only be determined by future and more correct observation. The exciting causes are stated by Dr. Dewees to be improprieties in diet and clothing. He observes also, that it is very often aggravated by worms, but such a complication has not come under our notice.

General description of the disease.—Cholera infantum may be divided into three stages, based upon its anatomical characters. In their description we shall be guided chiefly by the results of our own observations.

Symptoms of the first stage.—This usually commences with diarrhœa, succeeded by vomiting and purging; these symptoms are soon followed by fever of a remittent type with evening exacerbations; the pulse is small, quick and frequent, occasionally full, and sometimes tense; the brain is often affected sympathetically; this condition is manifested by a tendency to delirium; the eyes have a fierce and wild expression, and the face is flushed; the stools in this stage vary much in consistence; at times they are thin and watery, but often pasty or mush-like; their colour differs also greatly in the course of the day, and from one day to another; in a number of cases they presented the appearance of chopped egg, upon which boiling water had been poured; occasionally they consisted almost entirely of mucus. The period at which the vomiting is observed varies; it occurs usually on the second, but often as late as the fourth or fifth day; in some instances there is no vomiting throughout the course of the disease; in one case it did not make its appearance until a few days before death; the matter vomited consisted of the contents of the stomach, which were returned almost immediately after their entrance to it; these were more or less mixed with mucus; in infants at the breast the milk was returned in a curdled state, having an acid smell; in one instance it had the appearance of coffee grounds; the vomiting occurred for the most part three or four times a day, and sometimes oftener.

Temperature of surface.—The skin was occasionally moist, more frequently dry, warmer upon the head and abdomen; the latter is mostly warmer than the rest of the body, and often decidedly hot; the temperature of the extremities is natural, or more generally cool; occasionally it is warm; sometimes the lower extremities are cool while the upper retain their usual heat. The *respiration*, except in those cases complicated with other diseases, as hooping-cough or measles, was free, the number of respirations in the course of the minute amounting to 20, 21, 28, 29, 30, 33, 36, 40, 44, 48, 53, 55, 56, 60, 64, 66. When over 30 the respiration was more or less interrupted. The tongue in this stage was observed to be moist, but was often red at its tip and edges, and coated at its base with a yellowish or brownish yellow fur.

The *countenance* in the early stage, except when the attack was violent, was good, the eyes being bright and animated: occasionally the child would fall into a sleep from which it was easily roused. There was usually a considerable degree of irritability and restlessness, the little sufferer being pacified with difficulty. The sleep was often disturbed. The abdomen was occasionally tense and tumid, and somewhat painful on pressure; the thirst was often intense; it now and then happened, however, that drink was refused.

Anatomical characters.—These consist in an undue development of the follicles both of the stomach and intestines, or of one of those organs without inflammation of the mucous membrane. Children rarely die of cholera in the early stage; opportunities, therefore, seldom occur of observing the morbid appearances. M. Billiard who had ample opportunities, for the study of the diseases of children at the Hôpital des Enfans Trouvés of Paris, states that he had seen isolated follicles and follicular plexuses of the intestinal tube in considerable numbers, and developed without being inflamed in twelve infants; three were aged from eight days to three weeks, two aged two months, the remaining seven were from nine months to one year; the symptoms of the case he has published correspond so closely with those of cholera infantum, that, to use the language of Dr. Horner, it is evident had they occurred in this country, they would have been named, and in fact are cases of cholera infantum. M. Billiard states that most of these children had arrived at the period of dentition, so that there appeared to be a remarkable coincidence between the appearance of the teeth, and that of the organic development of the follicular apparatus of the intestines, the follicles performing an active part in the process of digestion by furnishing the surface of these organs with a fluid which in all probability assists in the elaboration of food. Dogs, he observes, and other carniverous animals remarkable for their digestive powers, possess this apparatus in a high degree of development. In a lioness which died in this city, some years ago, and of which I had the opportunity of making a post-mortem examination, the isolated follicles of the intestines were one fifth of an inch in diameter.

The follicles are sometimes found to exist in great numbers from the first period of life, but in general they are not very numerously developed, except at the period above mentioned, or at a still more advanced age.—(Billiard.) Rœderer and Wagler, in their work De Morbo Mucoso, in which they describe the symptoms and anatomical characters of a gastro-follicular enteritis that prevailed in Gotingen in 1760 and 1761, give very beautiful and accurate drawings of the mucous follicles in a state of abnormal development.

Second stage.—The vomiting which, in the commencement, was more or less frequent now occurs but seldom, while the diarrhœa continues; the stools vary much in appearance, but are more or less bloody and painful; there is also much restlessness, and the child is observed to draw up its limbs at the time of the discharge; the predominating colour of the stools is dark green, looking like chopped spinach; the colour, however, is occasionally lighter, but mixed with portions of a darker hue, or with lumps of yellow more or less curdled. They are often of a bright yellow

or chrome colour, or of a dark brown or chocolate colour, caused by the admixture of grumous blood. The appearance of the stools varies much in the course of the day, the change of colour probably depending upon the greater or less quantity of bile and acid in the intestines; the abdomen is more or less tumid and painful on pressure; tenderness of the abdomen, with drawing up of the limbs, and bloody discharges are the most important signs in this stage of the affection; the temperature of the abdomen is usually elevated, while that of the extremities is cool; the pulse is small and feeble, or it is frequent and tense; occasionally it is intermittent; as the disease advances, the emaciation already observed progresses, the skin about the neck and thighs hanging in folds; the eyes become sunken in the orbit, and each is surrounded by a dark areola; the nose is sharp, and the lips are shrivelled, the feet become œdematous, and the cutaneous sensibility is so much impaired that flies collect about the face without causing any uneasiness; the petechiæ are occasionally observed at this period; the tongue is dry and incrusted, and covered with aphthæ, and deglutition is now more or less painful; the child is often observed to thrust its fingers far back into the mouth, from the dryness of the fauces; the appetite becomes greatly impaired, and there is almost constant thirst. Dr. Dewees mentions the eruption of a quantity of minute vessicles upon the chest, which he considers a fatal sign. Dr. Condie states that he has known many instances of recovery, even when the eruption has been most extensive and distinct. We have observed it but in a single instance; the eruption, however, was not confined to the chest, but occurred in other parts of the body. Dr. Chapman speaks of the appearance of pink-coloured stools as a fatal symptom: this does not correspond with our own observations.

Anatomical characters of the second stage.—These consist essentially in inflammation with softening of the mucous membrane and ulceration of the follicles, more especially of the large intestine. The mucous membrane of the stomach in many cases presents its usual appearance and consistence; in others it is more or less injected and softened, the softening extending to all the coats, resembling the condition described by Cruveilhier, as characteristic of the disease termed by him *maladie gastro-intestinal des enfans*, and by Jægar, Gairdner, and others, softening of the stomach.

Rilliet and Barthez in their work on the diseases of children, notice the correspondence between the symptoms of softening of the stomach as described by Jæger, and those of cholera infantum; but an examination of the cases recorded in this paper will show that this condition of the organ is rarely observed. The lining membrane of the stomach is not unfrequently covered with a layer of whitish opaque mucus easily scraped off with the handle of the scalpel; the mucous follicles both of the stomach and intestines are more or less apparent; the mucous membrane of the small intestine is occasionally softened and for the most part pale in the greater portion of its extent, contrary to the statements of Dewees and others, who consider the small intestine as being the exclusive seat of the disease. In one case the portion of the intestine inflamed (the lower portion of the ileum), presented a brick-dust colour interrupted with alternations of a pale yellow, mottled with red in some points; minute vessels were seen freely inosculating with each other; in other portions the inosculations were less distinct, there being a uniform reddish tinge. In another it was of a dull red, or brick-dust colour, minutely injected with red vessels, and in several points, especially upon the surface of the valvulæ conniventes, presented a dotted appearance; it occupies a portion of the intestine four inches in extent from the pylorous. In another case, the duodenum at its upper portion presented a slight shade of pink, with a few minute arborizations, and in several other instances there was a slight degree of inflammation affecting the duodenum at its upper extremity. There was a slight inflammation of the glands of Peyer in one or two cases, but for the most part they presented nothing remarkable. The small intestines contained a considerable quantity of orange coloured mucus. The large intestine was more or less inflamed and softened in almost every instance; the inflammation existed in the form of bands, and presented a dotted arborescent appearance; in one case these bands were longitudinal: they were five or six inches in length and several lines in breadth; in another case the bands were about two inches in length, having a minutely arboriform appearance, and were of deeper red than the surrounding membrane; the first was situated one inch and a half from the cæcum, the second six inches from the first, and extended nearly the whole circumference of the the gut; it was three inches in length, and very minutely injected, but not so much as to destroy the arboriform arrangement. In most of the cases the redness was diffused, with occasional ramifications; in one instance the inflammation occupied the whole extent of the colon; it was of a vivid red throughout, and the membrane was much thickened. The inflammation was here also for the most part diffused, or in the form of bands occasionally presenting a ramiform appearance, the minute vessels freely inosculating with each other. From the margin of the follicles minute vessels were seen to radiate to the surrounding membrane, occupying the entire surface of the intestine, showing that the inflammation commenced in the follicles and extended subsequently to the mucous membrane. The follicles were often found to be more or less ulcerated, the ulcerations sometimes extending as far as the muscular coat; the ulcerations were more numerous, and penetrated more deeply in the rectum than in other portions of the intestine; it was often completely riddled with them; we have not observed the surrounding membrane to be implicated to any extent; the mucous membrane was more or less softened in the greater number of cases; in one instance it was thickened; the membrane in this case was intensely inflamed. The coats of the intestine were covered with a layer of mucus, sometimes so thick as to diminish considerably its calibre. It ordinarily contained a quantity of grayish coloured fæces of the consistence of gruel. The lungs presented nothing remarkable but a slight engorgement posteriorly except in three cases, one of which was complicated with measles, and the remaining two with hooping-cough; in these cases the usual appearances of lobular pneumonia were present. In one case the patient had been attacked with pleurisy in consequence of exposure to the night air; at the autopsy a considerable quantity of pus was found effused in the cavity of the right pleura, and the lung was more or less disorganised. The peritoneum presented its usual healthy colour in all the cases observed; the liver was greatly enlarged in but a single instance, contrary to the statements of most authors, who affirm this to be uniformly the case; the gall bladder was more or less distended with dark-coloured bile, staining the finger a deep yellow; the mesenteric glands were not enlarged, the spleen and kidneys presented nothing remarkable. In nearly all the cases the veins of the pia matter were more or less distended; the arachnoid was pale and moist, except in one case in which there was a slight opacity at the base of the brain; there was more or less effusion in the sub-arachnoid celular tissue, for the most part limpid; occasionally a whitish, opalescent, or citron-coloured appearance; the pia matter was more or less injected, but the injection for the most part appears to have been confined to the larger ramifications; it was easily removed by traction from the surface of the brain; the substance of the brain presented its natural appearance except in two cases, in one of which the central, and in the other both the central and corticol portions were injected; it was softened in four of the cases; there was little or no effusion in the ventricles; in one instance the lateral ventricles appeared to be quite dry, as if wiped with a cloth.

Third stage.—Symptoms.—The symptoms indicative of this stage of the affection are an unusual disposition to drowsiness or stupor, rolling of the head, and chewing motion of the under jaw, succeeded by convulsive movements or rigidity of one or more extremities, followed by paralysis. When the disease has progressed thus far it may be considered almost, if not entirely beyond hope.

Anatomical characters.—These consist essentially in disorganization of the structure of the brain from softening of its tissue. The softening is sometimes general, but is more often confined either to the cortical substance or to the central portions of the brain and cerebellum. The softening may exist to such a degree as to cause the brain readily to give way on slight pressure, or its substance may be rendered quite diffluent so as to resemble cream. These effects are the result of long-continued irritation; the substance of the brain when cut into, usually presents numerous red spots from effusion of blood. The pia matter is more or less injected, and its veins much distended. There is also effusion of serum in the subarachnoid tissue, and to a greater or less amount in the lateral ventricles. This, however, is not always the case, the surface being sometimes quite dry.

Diagnosis.—Cholera infantum may be confounded with tubercular meningitis, or dropsy of the brain. From this, it may be

distinguished by the frequency of the discharges, whereas, in the former affection the bowels are usually torpid, and by a proper acquaintance with the natural history of the disease. In tubercular meningitis the premonitory symptoms are such as indicate an affection of the brain; it occurs for the most part in delicate scrofulous children. Cholera infantum commences with looseness of the bowels. In tubercular meningitis, the cerebral symptoms predominate in the commencement. The child is restless and irritable, and complains of acute pain in the head, referring it chiefly to the forehead; the pain is intermittent, and is usually accompanied with a peculiar cry, which has been considered by Coindet and others as pathognomonic; the sleep is more or less disturbed, and frequent tossing about of the hands; the head is rolled from side to side, and there is more or less moaning and grinding of the teeth; delirium is almost a constant symptom, and the countenance assumes a peculiar characteristic appearance; this is so marked that the nurses at the children's hospital of Paris easily recognise the disease. It is only in the advanced stages that cholera infantum can be confounded with tubercular meningitis when the patient relapses into a state of drowsiness or stupor; which is a prominent symptom of the advanced stage of hydrocephalus, and is often accompanied or preceded by convulsions. Cholera infantum may be confounded with the *typhoid fever* of children. To this affection it bears a close resemblance; it may be distinguished from it, however, by the absence of gargouillement, of the numerous lenticular spots which in typhoid fever usually make their appearance from the sixth to the twelfth day, by the agitation and slight delirium at night; the prominence of the spleen, the character of the fever, which is more intense, and continued beyond the ninth day; and the existence of the sibilant râle, all of which were prominent although not constant symptoms in typhoid fever.

The resemblance between the two diseases is such that it is often impossible to distinguish them apart. Cholera infantum may also be confounded with softening of the stomach. The similarity between the symptoms of gelatinous softening of the stomach, as described by Jæger, and those of cholera infantum, appears indeed to be striking; the coincidence has been observed by Rilliet and Barthez, who do not describe the latter disease as a distinct affection occurring in Paris. The following are the signs of gelatinous softening of the stomach, as laid down by them in their invaluable work. If a child be taken suddenly with obstinate vomitings which persist, with insatiable thirst, with pain in the abdomen, with abundant diarrhœa; if at the same time it emaciates with rapidity, we may then infer a gelatinous softening of the stomach. —(Tom. i. p. 467, Art. *Gastrite et Ramollissement de l'Estomac.*)

Prognosis.—The prognosis in cholera infantum may be considered favourable when the pulse becomes slower, when the temperature is restored to the surface, when the vomiting ceases, and the alvine discharges become less frequent, and more natural; an opposite opinion may be formed when the pulse continues feeble; the surface remains cold; the discharges become very frequent, resembling the washings of meat, accompanied with great uneasiness and jactitation, or a disposition to stupor; should there be rigidity and a partial loss of power of the extremeties, the patient may be considered almost if not entirely beyond the reach of art.—*Amer. Jour. of Med. Science.*

Influenza in the 16th Century.—Of this now universally prevailing malady, we have the following account in a letter from Randolph, the English Ambassador at the Court of Mary Queen of Scots, to Cecil (afterwards Lord Burghley), dated Edinburgh, November 30, 1562:—"May it please your Honour, immediately upon the Queen's arrival here she fell acquainted with a new disease, that is common in this town, called the 'New Acquaintance,' which passed also through her whole Court, neither sparing lord, lady, nor damsel, not so much as either French or English. It is a pain in their heads that have it, and a soreness in their stomachs, with a great cough; it remaineth with some longer, with others shorter time, as it findeth apt bodies for the nature of the disease. The Queen kept her bed six days. There was no appearance of danger, nor many that die of the disease, except some old folks. My Lord of Murray is now presently in it, and I am ashamed to say that I am free from it, seeing it seeketh acquaintance at all men's hand's." The letter is printed at pp. 105—107 of the *Selections from Unpublished Manuscripts illustrating the Reign of Mary Queen of Scotland*, presented to the Maitland Club, in the year 1837, by the late Mr. Kirkman Finlay of Castle Toward.—*Caledonian Mercury.*

SURGERY.

Case of Strangulated Inguinal Hernia, reduced on the New Method recommended by Dr. Andrew Buchanan, Professor of Institutes of Medicine in the University of Glasgow. By Archibald Wallis Mackie, *Cupar-Fife.*—G. M., aged seventeen years, railway labourer, of a stout habit of body, and enjoying previous good health, whilst employed lifting some heavy railway sleepers on Friday last, felt something to give way at the lower part of his abdomen. The patient was unable to walk and was carried to a neighbouring house, where he remained till next day, when he was conveyed to his father's residence, a distance of 11 miles. I was called to visit him on Sunday morning, and on examination found a tumour the size of a hen's egg, situated in the right iliac region, the general characters of which led me to conclude that it was a case of strangulated oblique inguinal hernia. The patient had not had his bowels opened since the morning of the accident. I ordered him an enema, and after waiting till it was expelled, I applied the taxis, but unsuccessfully; I then had recourse to the usual remedies adopted in such cases, but without any effect. I bethought me of the plan recommended by the talented Professor of Physiology in the Glasgow University, and I was glad to see my efforts crowned with success. The mode is very simple. I placed the patient on his back, flexing the thighs on the pelvis, and putting the muscles of the abdomen in as relaxed a condition as possible. I then desired the patient to empty his lungs of as much air as possible, and having an assistant at hand, who immediately held his nose and mouth to prevent inspiration, I applied gentle pressure over the tumour, in the proper direction, and had the satisfaction to feel it give way, and, as it were, *draw up* into its natural cavity.

The *rationale* seems to me to be, when the lungs are emptied of air, the diaphragm is, as it were, sucked up to fill the diminished thoracic cavity; it (diaphragm) exerts a tractile power over the floating viscera of the abdomen, and draws the protruded intestine upwards—naturally *assisting*, if not *altogether accomplishing* the reduction of the hernia.

Such is the mode, I conceive, in which the reduction is accomplished; and I have no doubt that, in addition to the mechanical influence, the temporary suspension of the breathing must have a powerful sedative effect, and consequently a relaxing influence on any part morbidly constricted. Before operating, I would always give this plan a fair and impartial trial, and I am confident, if practitioners would adopt this method, they would have the satisfaction of relieving their patients, and thus, averting the dangers of a painful and often fatal operation.—*London Medical Times.*

Dr. Mayne on the Three Images of the Eye in Cataract, Amaurosis, &c.—A few years before his death, Sanson, the Clinical Professor of Surgery at La Pitié, made an interesting discovery, calculated to throw considerable light on the diagnosis of several diseases of the eye—viz., that on a lighted candle being placed in front of the healthy eye, three images of the flame were distinctly visible; whereas when opacity of the crystalline lens existed in ever so slight a degree, the intensity of the reflexion was diminished, or the number of the images reduced to two or one.

We were following Sanson's practice at the time that the phenomenon first attracted his attention, and well recollect the great sensation produced by his discovery. For some weeks every one connected with the hospital was continually making experiments, in order to ascertain the existence of the three images in the healthy eye, and to discover, if possible, the cause of the modification of the images in the diseased organ. It was generally supposed at that time that the phenomenon would prove of considerable value in the

diagnosis of difficult cases, and so it unquestionably did in the hands of Sanson. Since his death other surgeons have resorted to the above means of diagnosis, but with very unequal success, so that of late, among the Parisian practitioners, it has been falling into disrepute. It is under these circumstances that Dr. Mayne, a favourite pupil of Sanson, has contributed an interesting article on the subject in a recent number of the *Gazette Medicale*, which we shall transcribe, as it is very concisely written. We are induced to give Dr. Mayne a little more room than we should have otherwise done, from the belief that the attention of ophthalmalogists has not been pointedly directed in our own country to this very interesting phenomenon. It is not even alluded to in Mr. Scott's able treatise on cataract, which we reviewed last year. Dr. Mayne writes as follows:—

Professor Sanson first remarked in 1836, that when a candle is placed before the eye of a person affected with amaurosis, the pupil being dilated, three images of the flame are perceived, placed one behind the other. The most anterior and the most brilliant is straight; the second or middle one is paler and inverted; the third or posterior one is straight, as the first. Sanson communicated his discovery to his class in 1837, and subsequently explained the mechanism of the phenomenon by means of an apparatus in glass, imitating the human eye, with which he demonstrated the effects produced by cataracts. This his two internes, MM. Bardinet and Pigné, effected on their side with the assistance of a few watch glasses. Sanson and his pupils arrived at the same result. They found that the anterior straight image is produced by the cornea; the second or middle inverted one by the posterior segment of the crystalline capsule; and the posterior straight one by the anterior segment of the capsule. Opacity of the cornea destroys three images; opacity of the anterior capsule destroys the two posterior ones; and opacity of the posterior capsule prevents the production of the inverted image. In other words, in posterior capsular cataract, the middle or inverted image is not seen; in cataract of the anterior capsule, the anterior straight one only is visible, which also is the case in capsulo lenticular cataract.

Sanson concluded from his experiments that cataract, even in its incipient stage, could be distinguished by this means from amaurosis and glaucoma. The extensive opportunities for studying diseases of the eye which he enjoyed, enabled him to test his discovery on many patients, which he did with great success. How is it, then, that this means of diagnosis should now be nearly abandoned? It must be that the difficulties which it presents in the hands of surgeons who are unaccustomed to resort to it, are such as to modify the results obtained, and consequently to dishearten them; and this I believe is really the case. Several clever practitioners have told me that they have been led into error by having recourse to the lighted candle, but such a circumstance does not prove against Sanson's discovery; it merely shows that the experiment was erroneously carried into effect. There are several sources of error which must be guarded against.

The first indispensable precaution is to dilate the pupil previous to performing the experiment. (It was on an amaurotic patient that Sanson first observed the phenomenon.) The field of the pupil is of very limited extent, and the impression produced on the eye by the presence of the candle tends still further to diminish it, causing the iris to contract. Were not the pupil, therefore, artificially dilated, the three images would have to be sought for in a circle not presenting more than three millimeters in diameter. A person perfectly familiar with the appearance of the images would have the greatest difficulty of recognising them under such circumstances. Now if we suppose the examination to be made by a surgeon who has never seen them, and has not dilated the pupil, it is easy to understand that he may only observe one, and conclude that his patient is affected with cataract. Time, however, may prove that such is not the case, and he then supposes that the mode of diagnosis which he resorted to is in fault, whereas the error was the result of proper precautions not having been taken. It is therefore necessary to increase, as far as possible, the field of the pupil, which may be doubled or trebled by the use of belladonna. In order to obtain immediate dilatation, a few drops of a solution of atropia should be instilled into the eye. Its instillation is followed by pain, injection of the conjunctiva, and by a discharge of tears, but the pain is bearable, and the injection and epiphora are of short duration. The eyelids should be kept closed, or the solution would be carried away by the tears. It is equally necessary that the examination of the eye should take place in complete darkness, otherwise the external light will produce reflections in the eye which will sometimes simulate the images of the candle, and sometimes prevent their being recognised. The pupil being thus dilated, and the patient placed in a dark room, the light should be moved about before the eye. In addition to the above causes of error, there are others which may lead the observer to suppose that the images are deceptive, when such is not the case. The cataract may be so slight as merely to consist in a scarcely perceptible cloudiness, through which the rays of light penetrate, although with difficulty. Or, the opacity may commence by the circumference, and only affect a limited portion of the surface of the crystalline capsule or lens, the remainder being perfectly sound.

The surgeon who has recognised the three images in these cases, and who has concluded from them that there is no cataract, is surprised to perceive, in the course of time, the opacity becoming manifest, and thinks the mode of diagnosis which he resorted to in fault. These cases are, it is true, very embarrassing; nevertheless, it is possible to recognise them. If the change consists in a slight cloudiness, the images perceived are not like those in the healthy or amaurotic eye; the anterior one alone is brilliant, and the others are extremely pale and dim. This circumstance alone should put the surgeon on his guard, and, combined with the other symptoms, may enable him to arrive at a correct diagnosis. When, on the other hand, the crystalline apparatus is only affected in a limited extent, if the opaque point does not present itself to the flame, you recognise three images, of normal brilliancy: and yet the diminution of the sight is not referrible either to amaurosis or glaucoma. The patient should be told in such cases to move his eye in every direction; and an object should be presented to it and made to follow its movements. When this object is in the direction of the cataract, it will not be seen. Having thus ascertained the diseased point, the surgeon must place the flame opposite the diseased region of the eye, when one or two only of the images will be seen, according to the nature of the cataract, and the disease will be recognised. These, no doubt, are the sources of error which have deceived many well-informed practitioners. The following cases are instructive, as illustrating this fact:—

Case 1.—In June, 1841, the Duchess of M—— came to consult Sanson; he was then suffering from the long and cruel malady which eventually caried him off, (a disease of the spinal cord,) and asked me to examine her. The eyes appeared healthy, and had been judged so by several surgeons. The iris was moveable, and the pupil dilated in both eyes. The two posterior images were scarcely perceptible. I was consequently inclined to admit the existence of a cataract, and in order to acquire a greater certainty, requested the lady to use a belladonna ointment over the orbits, and to call the following day. Sanson examined her along with me on her second visit. We saw the two images, but so dimly as to be scarcely perceptible. Sanson agreed with me in admitting the existence of two incipient cataracts, and time has verified our diagnosis.

Case 2.—In the same year, Madame B——, wife of a member of the Institute, consulted Sanson. I was told by him to examine her, and found that there was a region of the pupil of the left eye where one image only was seen. Sanson died, and Madame B—— consulted another practitioner of great eminence. By him she was treated for several months for amaurosis. Not finding her sight improve, she came to me. As I was about to examine the eye with a wax-light, she reminded me that I had employed the same means when she had consulted Sanson, and that I had found one region of the eye defective—a fact which had escaped my memory. This again I ascertained to be the case. I told her to use belladonna ointment; and the following day I discovered, through the dilated pupil, an opacity near the inner angle. One image only was perceived, and on examining attentively the eye at daylight, the circumscribed opacity became distinctly visible: my finger, placed before this region of the eye, was not seen. I consequently diagnosed incipient anterior capsular cataract. The correctness of the diagnosis eventually became evident to every one.—*The Lancet*, 1845.

Dislocation of the Pelvis.—At a meeting of the Academie de Medecine, M. Begin read a report on a memoir by M. Murville on *luxations of the pelvic bones*, of which the author narrates two remarkable examples. The first was the case of an officer who fell from a second-floor window, and lighted on the tubera ischii. The sacrum was displaced downwards by the weight of the body. On examination, the crests of the ilia were found to be almost touching the false ribs; the os coccygis, much shattered, projected considerably below. The patient complained of great pain in the sacro-iliac symphysis, with paralysis of the bladder and rectum, small pulse, and other signs of collapse. He was restored somewhat by stimulants, and when re-action was fully established, he was treated antiphlogistically, the displaced bones being maintained as motionless as possible. No attempt at reduction was considered advisable. This treatment was marvellously successful; not only did the patient survive, but the paralysis diminished, and in ten days the patient was able to walk with difficulty.

The second case is unique. An officer during a review was run away with, the horse at the same time plunging violently; in one of the plunges he was thrown considerably from his saddle, upon which he descended again with such force as to lacerate the left side of the pelvic arch, without injuring the skin. A second plunge of the animal added to the mischief, completely rupturing the ligaments of the symphysis pubis. When examined, a large inguinal hernia was discovered on the left side, and in the perineum a tumour projected as large as the fist, which could be pushed upwards into the pelvis. The symphysis pubis was separated to an extent which allowed the hand to be insinuated between the ossa pubis. The hernia was reduced, and the bones kept in apposition by bandages, and in three months the patient was able to walk. M. Murville upon this case founded some remarks upon the feasibility of the operation of division of the symphysis in labour. In a discussion which ensued, M. Malgaigne doubted that it was a case of simple dislocation, thinking it probable that there was also fracture.

Statistics of Lithotrity and Lithotomy.—After the presentation of memoirs on pellagra and vaccination, which are not of interest to the British reader, the discussion on lithotomy and lithotrity was resumed. M. Civiale, who opened the debate, gave a statistical account of stone operations in different localities. In Bristol, of 135 operations between the ages of one and ten years, 28 or one in 4·68 died. Of cases by Dr. Yelloly, on subjects under fourteen, 69 died out of 357 cases, or one in 5.17. Of 100 operations performed at the Hotel Dieu, 56 were cured and 28 died. Between the years 1836 and 1842, 73 operations for stone have been performed in the hospitals of Paris, on patients of all ages: of these 45 were cured and 25 died; in 3 the issue was unknown. This makes a mortality of one in 3. In 89 operations by Dupuytren, on patients under the age of fourteen, the recoveries were 70, the deaths 19,—that is to say, 1 in 4.66. Such are the results of the operation for stone. In opposition to this, M. Civiale adduced the following statistics:—Of 838 cases of stone which presented themselves to him between the years 1824 and 1845, 548 were heal'ed by lithotrity; the remainder were not considered proper cases. To these 548 cases he adds, 25 cases of lithotrity from relapses, 8 in which lithotrity was performed subsequently to lithotomy, and 10 recent cases, making in all 591. Of these 566 were cured, 14 died, and 11 were relieved. In recapitulation M. Civiale considers it established,—1. That by lithotrity properly performed, 98 patients out of 100 are cured. 2. That by lithotomy, performed without distinction of age, 20 or 30 per cent. are lost. 3. In infants 9-10ths are saved; among adults and old persons, 60 to 70 per cent. are saved.

New Operation for Stone.—M. Maisonneuve presented a patient from whom he had removed a stone by a new method, which he calls the *rectal* operation. The description is as follows:—The patient being placed in the lithotomy position, a sound with a wide groove is introduced into the bladder, and depressed towards the rectum by an assistant. The surgeon then introduces the index finger of the left hand into the rectum, and feeling for the staff, inserts the nail into the groove. This being done, a sharp-pointed bistoury, perfectly guarded, is slipped along the finger as a director, until its point impinges upon the groove of the staff; it is then made to divide the walls of the rectum and the urethra. This incision made, the bistoury is withdrawn, and a double lithotome is inserted in a similar manner, until it reaches the groove of the staff; when withdrawing the left finger, the surgeon seizes the staff, and raises it a little, while with the right hand he pushes the lithotome into the bladder. The staff is then withdrawn, and the surgeon introduces the left index and middle fingers into the rectum below the lithotome, which is then withdrawn, so that its separated blades make a bilateral incision in the rectum, through which the stone is removed.—*Provincial Medical & Surgical Journal.*

Case of Axillary Aneurism, for which the Subclavian artery was tied with success.—By James Syme, Esq., Professor of Clinical Surgery in the University of Edinburgh.—Having already placed upon record two instances of life being preserved, under very peculiar circumstances of axillary aneurism, by amputation of the shoulder-joint, I have now the more pleasing duty of relating a case of the same disease, remedied by ligature of the artery without removal of the limb.

A gentleman, aged 34, from the north of Scotland, commended by Dr. Ross of Tain, applied to me on the 25th of July, on account of an axillary aneurism of the right side. It was of a large size, filling the axilla, and pressing forward the pectoral muscle, so as to be distinctly perceptible through the clothes. The patient stated, that about sixteen years ago he had fallen down a stair, and by an involuntary effort to save himself, had seized the railing with his right hand, and consequently sustained a very severe wrench of the limb. With exception of some pain, and the ordinary uneasiness attending such an injury, he had not afterwards suffered any noticeable inconvenience further than an occasional difference of temperature in the hands, until about ten months ago, when he began to suffer from pain in the little and ring fingers, which gradually became almost constant and extremely distressing. More lately, the axillary tumour had attracted attention; and on the 29th, with the assistance of my friends, Drs. Duncan and Mackenzie, I tied the subclavian artery, where it emerges from the scalenus anticus, by a single silk ligature, drawn with all the tightness in my power. No inconvenience whatever was experienced—the ligature separated on the fifteenth day, and the patient at the end of another fortnight returned home, perfectly free from pain, and with hardly any perceptible remnant of the tumour.

In performing the operation I made an incision along the clavicle, so as to extend over the edges of the sterno-mastoid and trapezius muscles, and another from the centre of this upwards, parallel with the edge of the latter muscle. The dissection was conducted entirely by the knife and forceps. The needle was passed under the artery, with its convexity upwards, and the ligature was tied by the unaided effort of the fingers. It has been advised to pass the needle with its convexity downwards, or towards the clavicle, with a view to protect the vein from injury. But this vessel is not at all in the way, while the cervical nerves are so situated in regard to the artery, as in general to render it

nearly, if not quite, impossible to convey the ligature from below upwards. It has also been advised to employ the assistance of some mechanical contrivance for tightening the knot. But I feel persuaded that the thread will always be within reach of the fingers, and may be more safely tied by them simply, than with the intervention of any instrument.

I may take this opportunity of remarking, that in the last number of this journal I have been represented as utterly regardless of the pain suffered by patients. Having constantly endeavoured to lessen the sufferings inflicted through the practice of surgery, by diminishing the frequency of operations, and simplifying their performance, I trust that any notice of a charge so unexpected, beyond an indignant denial, will be deemed superfluous. It is true that, as stated in my paper upon the use of ether, I regard the pain suffered during an operation as a secondary consideration, when compared with any defect in accomplishing the object of its performance. And I still think that the *North British Reviewer* did no service to the public or the surgical profession, by exaggerating the importance of pain, and misrepresenting the effects of its prevention.—*Ed. Monthly Journal of Medical Science.*

Employment of Sponge-Tent to Dilate the Urethra in the Female. By Jonathan Toogood, M.D. In a late number of the *Provincial Journal*, Mr. Worthington relates a case of successful extraction of a calculus from the bladder of a female by Weiss's dilator, and states. "that the process of dilatation was commenced at eight o'clock in the morning, and that at the end of every two hours he visited the patient for the purpose of giving the screw of the instrument from a quarter to half a turn." Having understood from those who have employed that instrument, that it occasions much pain, I have never used it in my own practice, but have preferred dilating the urethra with sponge-tent, which I have always found a safe, effectual, and easy mode of accomplishing the object. I have twice succeeded in this way in extracting a female cathetar which had accidentally slipped into the bladder, with so much ease, that I should always adopt the same plan with confidence, for the removal of calculus or any other foreign body. The plan was as follows:—A sponge-tent, somewhat larger and longer than a female catheter, was passed into the bladder, and allowed to remain eight or ten hours, by which time the urethra was sufficiently dilated to admit the passage of the finger readily into the bladder, and the introduction of a pair of forceps, by which the catheter was removed without any difficulty. In the first case the patient was not aware that the accident had happened; the catheter remained in the bladder fifteen days without producing any irritation, and the extraction was so easily effected that she was not conscious that any operation had been performed, and the bladder regained its power immediately. In the second, the catheter was retained seventeen days, during the whole of which period it occasioned much pain and irritation; nevertheless, on the fourth day after the extraction, the incontinence of urine ceased entirely.

I have repeatedly found the sponge-tent extremely useful in opening the neck of the uterus for the purpose of exploring its cavity, and for the removal of tumours. The introduction gives but very slight pain, and the dilatation is so gradually effected, as scarcely to be felt.—*Prov. Jour.*

New and Successful Method of Treating Prolapsus Ani.—By Dr. Hake.—The method consists in returning the bowel or hemorrhoidal tumours with great care after the daily motion; in assisting its return by means of soap lather; in applying a coil of moist sponge firmly upon the anus, and, while retaining it there with one hand, bringing the nates together by means of a broad strip of adhesive plaster, as on approximating the edges of a wound.

This method Dr Hake has now tested in several cases; it has never failed of success.

[The following is extracted from a letter from a patient who first put the plan to trial and by whose ingenuity it was first conceived:]

"Take a piece of sponge four or five inches long, an inch and a half wide, and half an inch thick, the more elastic the better; roll this, in a damp, but not wet state, pretty tightly, so that the roll, if relaxed, would be ready to spring back into its full length and it would then make a roll of some little substance, round, but still soft, and its length, when thus rolled, will of course be an inch and a half. Apply it, then, lengthwise, to the anus, so that it may be pressed, about the centre of it, quite home and firmly to the part. Taking care that it may remain so, stretch a length of adhesive plaster, about 14 inches long, and three and a half wide, more or less, straight across the nates, rather low down, and contrive so that while the plaster adheres on one side, you press the other side closer to its opposite, before you fix the length finally where it is to remain. Then sit down, at first gently upon it, and it will become very firm and fast, so long as the plaster is good. These two pressures constantly going on, do the work without any inconvenience worth speaking of; I mean the roll of sponge always striving to unwrap itself, and the cross-band of adhesive plaster always keeping it from doing so by holding the nates sufficiently close together. The working is perfect with a little use and management. I never put this on until I am going about, or to take exercise, whether walking, riding, or driving. In the evening I take off the plaster, but leave the sponge in its place, where it has got by that time so firmly fixed by gradually spreading and swelling, that there is no danger that anything short of great exertion will loosen it, and it is of course more comfortable to do without the plaster when it is not wanted. The sponge should be washed in cold water every time it is taken off, and in cold weather the plaster should just cross the fire before it is is put on; in moderately warm weather it will adhere of itself, especially if it is sit upon for half a minute. The same plaster is better the second day than even the first, and will do even the third, where economy is an object Wash the parts where the plaster goes every morning, or oftener, with water, or water and vinegar, and the skin will never suffer. If the plaster leaves something sticky behind it, when it is taken off, rub it with a very little spirit of wine, and the towel will remove it.

"If there be an irritation about the anus or the gut that comes down, wash it with vinegar and water, and the relief will be wonderful, and that part of the evil soon cured. This wash cannot be too much praised for this purpose, for piles, and the like."
—*London Medical Gazette.—Ranking's Abstract.*

Discovery of a new Anæsthetic Agent, more efficient than Sulphuric Ether: By J. Y. Simpson, M. D., Professor of Midwifery in the University of Edinburgh: Physician-Accoucheur to Her Majesty in Scotland. &c. &c.

At the first winter meeting of the Medico-Chirurgical Society of Edinburgh, held on the 10th November last, I had an opportunity of directing the attention of the members to a new agent, which I had been using for some time previously, for the purpose of producing insensibility to pain in surgical and obstetric practice.

This new anæsthetic agent is Chloroform, Chloroformyle or Perchloride of Formyle.* Its composition is expressed by the chemical formula C_2 H Cl_3. It can be procured by various processses, as by making milk of lime, or an aqueous solution of caustic alkali, act upon chloral; by distilling alcohol, pyroxylic spirit, or acetone, with chloride of lime; by leading a stream of chlorine gas into a solution of caustic potass in spirit of wine, &c. The resulting Chloroform obtained by these processes is a heavy, clear, transparent liquid,

* In making a variety of experiments upon the inhalation of different volatile chemical liquids, I have, in addition to Perchloride of Formyle, breathed Chloride of Hydro-carbon, Acetone, Nitrate of Oxide of Ethyle, Benzyin, the vapour of Iodoform, &c. I may probably take another opportunity of describing the results. It is perhaps worthy of remark that, in performing his experiments upon inhalation, Sir Humphry Davy confined his attention to the inspiration of gases, and does not seem to have breathed the vapour of any volatile liquids.

with a specific gravity as high as 1·480.* It is not inflammable. It evaporates readily, and boils at 141°. It possesses an agreeable fragrant fruit-like odour, and a saccharine pleasant taste.

As an inhaled anæsthetic agent it possesses, I believe, all the advantages of sulphuric ether without its disadvantages.

1. A greatly less quantity of Chloroform than of ether is requisite to produce the anæsthetic effect; usually from a hundred to a hundred and twenty drops of Chloroform only being sufficient, and with some patients much less. I have seen a strong person rendered completely anæsthetic by seven inspirations of 30 drops only of the liquid.

2. Its action is much more rapid and complete, and generally more persistent. I have almost always seen from ten to twenty inspirations suffice; sometimes fewer. Hence the time of the surgeon is saved, and that preliminary stage of excitement which pertains to all narcotizing agents, being curtailed, or, indeed, practically abolished, the patient has not the same degree of tendency to exhilaration and talking.

3. Most of those who know from previous experience the sensations produced by ether inhalation, and who have subsequently breathed the Chloroform, have strongly declared the inhalation and influence of Chloroform to be far more agreeable and pleasant than those of ether.

4. I believe, that considering the small quantity requisite, as compared with ether, the use of Chloroform will be less expensive than that of ether, more especially as there is every prospect that the means of forming it may be simplified and cheapened.

5. Its perfume is not unpleasant, but the reverse; and the odour of it does not remain for any length of time attached to the clothes of the attendant, or exhaling in a disagreeable form from the lungs of the patient, as so generally happens with the sulphuric ether.

6. Being required in much less quantity, it is much more portable and transmissible than sulphuric ether.

7. No special kind of inhaler or instrument is at all necessary for its exhibition. A little of the liquid diffused upon a piece of sponge, or a pocket-handkerchief, and held over the mouth and nostrils, so as to be fully inhaled, generally suffices in about a minute or two to produce the desired effect.

I have had an opportunity of using and seeing used Chloroform with perfect success in several surgical operations (removal of tumors, of necrosed bone, partial amputation of foot, excision of the elbow-joint, &c.), and in tooth-drawing,† opening of abscesses, for annulling the pain of dysmenorrhœa and of neuralgia, in two or three cases where I was using deep and otherwise very painful galvano-puncture for the treatment of ovarian dropsy, and in removing a very large fibrous tumor from the posterior wall of the uterus by enucleation, &c.†

Case 1. A child of ten weeks old had a very large nævus behind the ear. Dr. Duncan destroyed its internal organization by passing large red-hot needles in different directions through it. While the tumour was hissing and decomposing under their action, the infant lay quietly and placidly asleep on my knee, under the influence of Chloroform. This is the youngest subject to whom I have given it. 2. A boy, of four or five, had a necrosed radius cut down upon and removed by Mr. Miller. He slept soundly during the operation; and, without moving, he was carried out of the operation theatre of the hospital still fast asleep. When visited some time afterwards he was found in bed awake, with a bright merry eye, as if just out of a refreshing sleep: no pain even then. 3. A nervous woman, a patient of Professor Miller's, was to undergo partial amputation of the foot in the hospital—afraid both of the operation, and of being carried in before a crowd of medical men for the purpose. I apathized her with the Chloroform in the consulting-room of the hospital, had her carried into the operation-room in that state, and did not allow her to awake till the amputation was performed, and she was removed back again to bed. She was thus entirely spared both the moral shock and physical pain which she dreaded. 4. A boy had his elbow-joint excised by Mr Syme. The operation, which is always a very painful one, was prolonged in consequence of the very diseased state of the parts operated on. He slept soundly, and remained perfectly and passively still during the whole operation, &c. &c.

I have employed it also in obstetric practice with entire success.

Cases.—1. The lady to whom it was first exhibited had been previously delivered in the country by craniotomy after a very long labour. Her second confinement took place a fortnight before the full time. Chloroform was begun to be inhaled when the os uteri was becoming well expanded, and the pains very severe. In twenty-five minutes the child was born. The mother did not awake till after the placenta was removed, and was perfectly unaware that her child was born and alive. She stated her sensations to be those of awaking from "a very comfortable sleep." 2. I exhibited it, with Mr. Carmichael, to a patient who had, at her preceding confinement, been in severe labour for twenty hours, followed by flooding. She began the inhalation when the dilatation of the os uteri was well advanced; the child was born in fifty minutes afterwards. She was kept under its influence for a quarter of an hour longer till the placenta was removed, and the binder, body, and bed-clothes, all adjusted. On awakening, she declared she had been sleeping refreshingly, and was quite unaware that the child was born. No flooding. An hour afterwards declared that she felt perfectly unfatigued, and not as if she had borne a child at all. 3. The patient in the Maternity Hospital had twins—the first presenting by the breech, the second by the head and hand. It was her first labour. The Chloroform was exhibited when the os uteri was nearly fully dilated. In a few pains the first child was born, assisted by severe traction. I broke the membranes of the second, and pushed up the hand. Three pains expelled the child. The mother was then bound up, her clothes changed, and lifted into another bed. During all this time she slept soundly on, and for a full hour afterwards; the Chloroform acting in this, as in other cases, as a soporific. Dr. Christison was present to see the effects of the Chloroform, &c.

* Of course to produce the full effects described, the liquid must be of the proper specific gravity and strength.

† A young dentist, who has himself had two teeth extracted lately—one under the influence of ether, and the other under the influence of chloroform—writes me the following statement of the results:—"About six months ago, I had an upper molar tooth extracted whilst under the influence of ether, by Mr. Imlach. The inhalation was continued for several minutes before I presented the usual appearance of complete etherization. The tooth was then extracted; and although I did not feel the least pain, yet I was conscious of the operation being performed, and was quite aware when the crash took place. Some days ago I required another molar extracted on account of toothache, and this operation was again performed by the same gentleman. I inhaled the vapour of chloroform, half a drachm being poured upon a handkerchief for that purpose, and held to my nose and mouth. Insensibility took place in a few seconds; but I was so completely *dead* this time that I was not in the very slightest degree aware of anything that took place. The subsequent stupefying effects of chloroform went off more rapidly than those of the ether; and I was perfectly well and able again for my work in a few minutes."

† I have now exhibited the chloroform to above eighty individuals, and in not one has the slightest bad effect of any kind resulted.

Perhaps I may be excused from adding, that since publishing on the subject of Ether Inhalation in Midwifery, seven or eight months ago,* and then, for the first time, directing the attention of the medical profession to its great use and importance in natural and morbid parturition, I have employed it, with few and rare exceptions, in every case of labour that I have attended with the most delightful results, and during periods varying from a few minutes to three, four, five, and six hours. And I have no doubt whatever that some years hence the practice will be general. Obstetricians may oppose it, but I believe our patients themselves will force the use of it upon the profession.† I have never had the pleasure of watching over a series of better and more rapid recoveries; nor once witnessed any disagreeable results follow to either mother or child; whilst I have now seen an immense amount of maternal pain and agony saved by its employment. And I most conscientiously believe that the proud mission of the physician is distinctly twofold—namely, to alleviate human suffering, as well as preserve human life.

In some remarks which I published in the *Monthly Journal of Medical Science* for September 1847, relative to the *conditions* necessary for insuring successful etherisation in surgery, I took occasion to insist upon the three following leading points:—"*First*, The patient ought to be left, as far as possible, in a state of absolute quietude and freedom from mental excitement, both during the induction of etherisation and during his recovery from it. All talking and all questioning should be strictly prohibited. In this way any tendency to excitement is eschewed, and the proper effect of the ether-inhalation more speedily and certainly produced. And, *secondly*, with the same view, the primary stage of exhilaration should be entirely avoided, or, at least, reduced to the shortest possible limit, by impregnating the respired air as fully with the ether vapour as the patient can bear, and by allowing it to pass into the mouth and nostrils, so as rapidly and at once to induce its complete and anæsthetic effect * * * * a very common, but certainly a very unpardonable error, being to exhibit an imperfect and exciting, instead of a perfect and narcotizing, dose of the vapour. Many of the alleged failures and misadventures are doubtless entirely attributable to the neglect of this simple rule; not the principle of etherisation, but the mode of putting it in practice, being altogether to blame. But, *thirdly*, whatever means or mode of etherisation is adopted, the most important of the conditions required for procuring a satisfactory and successful result from its employment in surgery, consists in obstinately determining to avoid the commencement of the operation itself, and never venturing to apply the knife UNTIL the patient is under the full influence of the ether vapour, and *thoroughly and indubitably soporised by it.*"

In fulfilling all these indications, the employment of chloroform evidently offers great and decided advantages in rapidity, facility, and efficiency over the employment of ether. When used for surgical purposes, I would advise it to be given upon a handkerchief, gathered up into a cup-like form in the hand of the exhibiter, and the open end of the cup placed over the nose and mouth of the patient. For the first inspiration or two it should be held at the distance of half an inch or so from the face, and then more and more closely applied to it. To insure a full and perfect anæsthetic effect, more especially when the operation is to be severe, a teaspoonful or two of the chloroform should at once be placed upon the hollow of the handkerchief, and immediately held to the face of the patient. Generally a snoring sleep very speedily supervenes; and when it does so, it is a perfect test of the superinduction of complete insensibility. But many patients are quite anæsthetic without this symptom.

Edinburgh, Nov. 22, 1847.

Suggestions on the Inhalation of Chloroform Vapour.—SIR,—Having employed Chloroform in numerous cases, I have great pleasure in offering additional testimony of its superiority to ether, over which it certainly possesses *all* the advantages maintained for it by Dr. Simpson. I would also offer one or two remarks as to its mode of exhibition. Dr. Simpson advises a handkerchief twisted into a conical form. At most of the metropolitan hospitals, and by many practitioners, a spunge is used. All the various forms of ether-inhalers seem to be employed, and an especial apparatus has now appeared similar to that employed by Mr. Robinson, for the vapour of ether.

Now, sir, the employment of any form of apparatus is certainly attended with inconvenience, is calculated to awaken the fears of the patient, and the use of the mouth-piece by one person after another disagreeable, to say the least. The use of the sponge has vesicated the lips, as at Bartholomew's; is equally unpleasant, in fact disgusting, as being employed for different persons, and, if held close, causes an obstruction to respiration. The method adopted by Dr. Simpson is undoubtedly superior to either—pouring the chloroform upon a clean handkerchief or small napkin (preferable, as being stiffer). It can be rolled into a conical shape, but *leaving an opening at the apex;* held a short distance off at first, after two or three inspirations, the base may be brought so as at once to cover the nose and mouth, and, being adjusted by the fingers of the left hand, will fit the face sufficiently for the air respired to pass through the opening at the apex.

The cleanliness of this method is sufficiently apparent: the attention of the patient is not attracted by the action of the valves; no obstruction is offered to free respiration; the air inspired is at a more favourable temperature; and, when the influence is effected, the operator, not having to place an instrument down, with care simply throws aside the napkin, and is at liberty: no time being lost, he need not so permanently soporize his patient—a matter not unworthy of consideration, particularly in minor operations. Since the introduction of etherization, I have constantly employed ether in painful operations, *if desired by my patient*, but have never had a case occur in which its influence has been so lengthened as in many that have been reported to me. This naturally induces a supposition that a larger quantity is sometimes given, causing a more persistent action than there is any occasion for.

Here, then, is at once the *simplest* and the *best* means of exhibiting this agent. All that can be urged against it is simply that a portion of the chloroform must be dissipated also in expiration—a matter not worthy of consideration.—I am, sir, yours, &c. SAMUEL GHRIMES,

Dentist to the Metropolitan Free Hospital.

71, Baker-Street, Portman Square,
December 6th, 1847.

—*London Medical Gazette.*

Dr. Snow on the Employment of Chloroform.—At the Westminster Medical Society, Saturday, Nov. 20, Dr. WEBSTER, President, Dr. Snow made some remarks respecting chloroform. He said that this agent, which had been introduced by Dr. Simpson, to be inhaled instead of ether, was preferable to the latter in some respects, although it was impossible that anything could be more efficient than

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* See *Monthly Journal of Medical Science* for Feb., p. 39; for March, p. 718 and 721, &c.

† I am told that the London physicians, with few exceptions only, viz., my friends Dr Protheroe Smith, Dr. Murphy, and perhaps one or two others, have never yet employed ether-inhalation in their midwifery practice. Three weeks ago, I was informed in a letter from Professor Montgomery, of Dublin, that he believed that in that city, up to that date, it had not been used in a single case of labour.

ether, as it was capable of totally preventing the pain in every operation in which it might be properly applied. He considered that the action of chloroform on the nervous system was identical with that of ether; by regulating the proportion of vapour in the air, he had produced the same effects on animals by both agents; chloroform, however, had the advantage of being less pungent, and, therefore, less care was required in graduating its first admission to the lungs; it was readily inhaled, and produced its effects with great rapidity, and the quantity consumed was curiously small when compared with ether. He had administered it on Thursday, in an amputation of the breast, performed by Mr. Tatum, at St. George's hospital. He gave it with his usual apparatus, the water-bath being 55 deg., and the quantity of vapour in the air inhaled not more than ten per cent. by measure, yet the patient was ready for the operation to begin in less than a minute, and it was performed without the least sign of pain, being equal to the best cases of etherization The patient recovered her consciousness, as might have been expected from narcotism by ether to the same degree, and she was going on well. Only one fluid-drachm of the material was used, although about ten fluid-drachms of ether would probably have been used in the same operation. He (Dr. Snow) had inhaled it until he became unconscious, and was very sick afterwards, as on the only occasion on which he inhaled ether to the same extent. When the full effects of ether could be induced quickly, there was no preliminary excitement, and as the new agent produced its effects very speedily, excitement previous to insensibility could probably be altogether avoided in its use. The chloroform placed on the table had been given to him by Mr. Bullock, the chemist; it had been rectified from chloride of calcium; he (Dr. Snow) found its boiling point to be 140 deg.; he was not aware that the elastic force of its vapour, at other temperatures, had been ascertained; but, from some experiments that he made, it seemed to follow a ratio very similar to those for ether-vapour and vapour of water; he had ascertained the quantity of vapour of chloroform that air would hold in solution, at various temperatures, and it was shown in a table of which the following is a copy:—

Quantity that 100 *cubic inches of air will take up.*

Temp.	Cubic inches.
50°.....	9
55°.....	11
60°.....	14
65°.....	10
70°.....	24
75°.....	29
80°.....	36
85°.....	44
90°.....	55

The quantity of this vapour in the air the patient inhaled, at ordinary temperature, was only about a quarter as much by measure as there would be of ether—being, however, nearly twice as heavy; there was nearly half as much by weight. Now, on account of the small space it occupied, it only excluded the air to a quarter the amount that ether-vapour did, and therefore interfered but little with the natural process of respiration; the patient, indeed, could take in nearly the usual amount of oxygen without quickening or enlarging the respiratory movements. It was to be observed, that temperature exerted a great influence over the quantity of this vapour that air would take up, and thus an elevation of little more than fifteen degrees in the warmth of the apartment would double the amount of it which the patient would inhale in a given time, if no means were taken to regulate the evaporation. Dr. Simpson recommended the chloroform to be inhaled from a sponge or handkerchief, and this simple means was sufficient; but he (Dr. Snow) preferred to use an apparatus, as, without it, more of the vapour was blown away by the warm breath of the patient than was inhaled. The strength of the vapour could not be regulated; it could not even be known when it was all expended, and no exact observations could be collected. The chloroform was of easier application than ether, on account of its quicker action; but for the same reason, greater care was required in its use, to avoid accident.

Saturday, November 27.—Some observations on this new agent were made in the course of the evening.

Mr. I. B. Brown had recently employed it as a remedial agent in a case of bronchitis in a lady about fifty, in whom, after the acute symptoms had been removed by appropriate treatment, great restlessness and sleeplessness, with some cough, presented themselves. These were so urgent, that for three nights she obtained no sleep whatever. She could not bear any kind of opiate. Under these circumstances, he placed half a drachm of chloroform, in a sponge, to her nostrils. It took almost immediate effect, and she had two hours of most refreshing sleep. Restlessness, however, returned on awaking, and continued for some hours; but since then she has had good nights, and is free from the symptoms mentioned.

Mr. Greenhalgh had, the day before, exhibited the chloroform in the way recommended, by holding it to the nose in a sponge. The patient was a gentleman, who was the subject of severe attacks of spasmodic asthma, which usually were of some duration, and from the effects of which he did not usually recover under two or three days. In this attack he administered forty minims of the chloroform. The patient almost immediately fell into a profound sleep, from which he awoke without any of the usual consequences of the attack. So pleased was he with the effect of the remedy, that he now kept a dose of the preparation in readiness, to inhale if an attack came on. He (Mr. Greenhalgh) had employed chloroform in a great number of cases, and had himself frequently inhaled it. It had the advantage over ether of being more easily applied, producing no excitement, being more rapid in its action, and leaving none of the unpleasant sensations behind it which ether did.

Professor Murphy had lately exhibited the chloroform in a case of perforation, occurring in a woman with a deformed pelvis, and in whom no other operation could have been resorted to for delivery. Dr. Snow had in this case exhibited the agent, and though the operation lasted for three-quarters of an hour, she was quite unconscious during the whole time, and when she awoke at the conclusion of the operation, expressed her surprise at her delivery. She had undergone the operation before, and had suffered greatly, the consequences of the proceeding being felt by her for the space of three months afterwards, so that she could not leave her bed. In the present instance, the operation had been performed only two days since, and she was now nearly well.

Dr. Snow said, that all the effects which had been exhibited in this case would have been obtainable from ether; the chloroform, too, was more expensive.

Professor Murphy observed, that when, in other obstetric cases, he had administered ether, he had been dissatisfied with the manner in which the patients had recovered from its effects; the state which they then exhibited was similar to half-drunkenness. Had flooding occurred under these circumstances, he should have been apprehensive of the result. After the use of chloroform the patient awoke quite tranquil.

Mr. Hancock had employed the chloroform in two cases of strangulated hernia, on which he had operated; the effects were most satisfactory, and the patients awoke calm and collected. When ether was given, he had found patients awake in an excited state.

Dr. Lankester inquired whether sickness followed the use of chloroform more frequently than that of ether? In three out of five cases in which he had seen chloroform employed, sickness followed. This was not the case when ether had

been used in those instances which had come under his own observation.

Dr. Snow said, that in this respect the ether and chloroform were similar. It depended on the state of the stomach, whether full or otherwise, whether vomiting occurred. It took place on an average in about one to five cases.

Mr. Barnard Holt had seen the chloroform employed in several cases; in all of them it had produced violent convulsions. He had seen the same effects from ether.—*London Medical Gazette.*

Operations under the influence of Chloroform. By William W. Gull.—The following incident, which occurred at Guy's Hospital yesterday, seems to me of sufficient importance to trouble you with its details:—

A boy, æt. 11, was under the care of Mr. Cook for disease of the right knee-joint, and it was determined to divide the tendons of the flexors. The boy was in good health, but his nervous system a little weakened from confinement to bed; his heart and lungs sound. A small quantity of chloroform, not exceeding 30 drops, was put upon a cone of bibulous paper, and placed over his mouth and nose. In less than a minute he was entirely insensible, the pupils becoming widely dilated, and the pulse small and frequent. As the operation was being proceeded with, his consciousness partly returned, and a few drops of the chloroform were put on a handkerchief and applied to the nose. He was instantly affected, and to such a degree that there was the greatest apprehension of his never rallying; the pulse was very feeble, 56; the breathing so indistinct as scarcely to be distinguished; the face pale, lips congested; the symptoms of collapse extreme. Amonia was employed, and, after about five minutes, he gave two or three deep inspirations; it was, however, more than fifteen minutes before he was so far himself as to be considered out of danger. Subsequently a small quantity of brandy was administered. He complained of headache. For a long time after he recovered his special senses and power of motion, general and perfect anæsthsia of the surface existed. This morning he is quite well.—*London Med. Gaz.*

Chloroform in Paris.—Some experiments with chloroform vapour have been recently made in Paris by M. Velpeau, at the hospital of La Charitié. A woman from 25 to 30 years of age, suffering from a cancer of the breast, was made to inhale about a dozen drops of the chloroform on a handkerchief. At first she was merely affected with giddiness, but at the end of four or five minutes she fell off into a sleep. M. Velpeau then made some superficial incisions in the breast affected, and which is subsequently to be amputated. He next cut off a large wart from her hand with a bistoury, and the wound thus made, when bleeding abundantly, was deeply cauterized. The patient awoke in about two minutes without having felt anything, and without any of that agitation which characterizes the awakening from ether. The chloroform was next applied to a woman of about 50 years of age, who had to undergo the opening of an abscess in the breast, and with precisely the same effect. The following, however, is a more interesting one, although the results obtained have been partly negative:—A man of 30 years of age, who was attacked with tetanus two days before, in consequence of a wound in the finger, was made to inhale ether several times without effect. At last the chloroform was tried, and at the end of two or three minutes he became insensible, without any previous agitation. The inhalation was continued about a quarter of an hour, and the sleep lasted about double that period. The muscles, which were previously the seat of tetanic convulsions, soon fell into a state of complete relaxation; the mouth opened naturally; the muscles of the trunk became supple, and the breathing was easy. When he awoke, his state was evidently much improved, but after a time the convulsions recommenced. Several new attempts to make him inhale were made, and each time in the same way, with this difference, that on each successive trial the contraction of the muscles yielded less completely to the stupefying influence. On Friday his state was decidedly worse; the tetanic convulsions had reached the lower extremities, and it was thought likely that death would promptly end his sufferings. It is evident from this case that the chloroform exercises a manifest action on the convulsed state of the muscles; and the persons who were present at the experiments, were struck with the fact that the patients who took it were perfectly calm.—*Dublin Med. Press.*

Injurious Effects of Chloroform.—At a recent meeting of the Surgical Society of Ireland, Mr. Stapleton stated that he had lately tried chloroform in some cases in Jervis Street Hospital. One man was put into a sound sleep, but awoke in about a minute afterwards, and expressed himself as having been conscious of everything that was done to him: while apparently unconscious, he said that he felt himself pinched, and so forth; but was unable to resist or give any indication of feeling. A resident pupil of the hospital had tried it a day or two ago, and was very merry during its action; to-day, he again tried it, and was put to sleep in two minutes, but recovered in two minutes more, and shortly after began laughing in a hysterical manner, and soon fell into violent convulsions, so as to require the united efforts of several people to hold him down in bed; he then got rigors, cold perspirations, and sickness of the stomach; his pulse sometimes fell very low, and, when the excitement was coming on, it would rise to 100. He remained in this uncertain state for two hours, and then expressed a wish to sleep. Under the operation of the chloroform there was a complete loss of muscular power, except during the convulsions.—*Dublin Medical Press.*

MIDWIFERY.

Leucorrhœa.—Leucorrhœa (or *fluor albus*, as it is sometimes called, from the appearance of the discharge of a thin white or milky secretion from the vagina of women not infected with a venereal virus) is of very frequent occurrence, and hence a correct understanding of it is important. For to attempt a cure in any case without a thorough acquaintance with the origin, causes and pathology of the complaint, is preposterous. In the treatment of disease, we must be guided chiefly by the actual condition of the whole system, as well as that of the diseased parts. This being granted, I can show that the mass of practitioners in this country are constantly treating leucorrhœa erroneously. They have one plan—they pursue that; and when it is adapted to the condition of the patient, benefit is derived; if it fails, the case is put down amongst the "incurables." One has this method, another has that; they all sometimes cure, but oftentimes they fail of their end, because not applied upon correct pathological principles.

Now there is no *one mode* of treatment for leucorrhœa; at *all times* the malady is to be managed in accordance with the general principles of medical science—and to be skillful in the application of these principles, it will be necessary to keep the pathology and causes of the disease constantly in view.

The disease consists of a peculiar inflammation of the mucous membrane of the vagina, or uterus, or both, and sometimes ulceration of these parts, which latter appears to me to be caused by the inflammation. It is characterized

by a more or less copious discharge of white matter from the vagina; in bad cases the secretions are yellowish or greenish, with an offensive odour, resembling that issuing from the vagina of one affected with *gonorrhœa virulenta*. It so closely mimics the latter, that it is often difficult to decide whether the case be not really gonorrhœa. Men who have intercourse with a patient of this class, are liable to suffer from the infection. Physicians are at times called upon to decide whether the case be one of leucorrhœa or gonorrhœa. Every practitioner has been tried in instances of this kind, and his judgment been given more upon the good or bad character of the woman, and the circumstances of the case, than upon his own real knowledge of the matter; and I believe often, after strict inquiry, he has failed in the end of a true diagnosis. But leucorrhœa, in its worst forms, requires nearly the same management as gonorrhœa; therefore an error is not dangerous, in a practical point of view.

After the discharge is established, and has for some time been kept up, the patient complains of debility, loss of appetite, great fatigue in the erect posture, pain and dragging sensation in the back and loins; she likens the pain sometimes, in severe instances, to the gnawing of a dog at the spine. Headache is a constant symptom. She becomes nervous and irritable. Painful micturition is mostly present during the complaint. A well-known train of horrid and sometimes fatal symptoms follows, if the disease is suffered to go on unchecked, the patient dragging out a miserable existence, or finding a premature grave.

Leucorrhœa may come on without any apparent cause, as it does frequently in juvenile females and infants; but more commonly it is in the result of some kind of irritation, as masturbation, too frequent intercourse with men, miscarriages, prolapsus uteri, &c. Prolapsus may induce the whites by exposing the mucuous membrane to the air, to friction, &c.; the latter may bring on the other complaint, by producing a relaxed condition of the muscles of the uterus, &c.; so that one of these affections is not unfrequently the causing agent of the other, and they often co-exist.

If our attention was early directed to these patients, we should, in general, be able to perform a speedy and permanent cure. But the contrary is most commonly the case; we are not consulted till the disease has become established, and the patient exhausted by the constant drain and irritation which has been so long kept up. But we shall always be able to promise *relief* in due time, often a permanent cure.

When leucorrhœa attacks a person otherwise healthy, we should prescribe aperient doses of epsom salts, (general or local bloodletting will scarcely ever be required,) and apply a strong solution of argent. nit. to the parts affected, two or three times a day. The diet should be abstemious. The patient should take only gentle exercise for eight or ten days, in the course of which time a cure will most likely be accomplished. This is the general plan of treatment best adapted to *acute* leucorrhœa.

In cases of long standing, we have a different course to pursue. The patient should avoid *stimulating* food and drinks, but a nourishing diet is mostly beneficial. Good porter and old wine are often useful in promoting strength and appetite. Gentle exercise, in and out of doors, if the patient indure it well, is very proper. At first the warm hip bath, and afterwards the cold shower bath, are remedies that I think much of. We are to prepare the patient for the cure of leucorrhœa before we treat her for any particular complaint; *i. e.*, we must endeavor to restore the functional harmony, and then strike at the root of the disease in question. It is useless to attempt a cure, without relieving the patient of the numerous difficulties which often attend the complaint, before we apply our remedies for the local disorder. This part of our duties will vary with the peculiarities of constitution, age and habit, and the other circumstances of the cases, as we before stated.

If ulceration has not taken place, we may next administer the tinctures of cantharides and steel, for such length of time, and in such doses, as are required. R. Tinc. ferri chlorid., tinc. cantharidi, *aa* one ounce. M. Dose, from twenty drops to two teaspoonfuls three times a day. Or, a mixture of the carbonate of iron with the cantharides, (and sometimes a little of the tincture of opium should be added, to quiet the irritation,) is a convenient form for this use. Or, R. Ferri sulph., one drachm; pulv. catharid., grs. xx.; syrupi, q. s. M. et ft. massa in pul. no. xxx., dividenda. Dose, from one to three pills thrice a day. The smaller doses should first be used, and the quantity increased until the flies produce their accustomed effect upon the urinary apparatus, when we should return to the smaller quantity, and in this way employ the remedies for a suitable length of time, when we may use the iron *per se*, or substitute other tonics for it, as bark, quinine, the vegetable bitters, &c. At the same time, the vagina and uterus, if applicated, should be injected with the caustic solution thrice daily.

But if there is ulceration, (which rarely happens,) the iodide of potash and the compound syrup of sarsaparilla may be advantageously given, at the same time we may stimulate the ulcerated surface with lunar caustic; then we can bring in the flies and iron with the happiest effects as secondary agents.

Women who have the whites are very liable to white specks, or vesicles, over the whole mucuous membrane of the vagina, strongly resembling those seen in the mouth and on the fauces of those who have *stomatitis*. Though this is not so alarming as the ulceration of the parts, nearly the same remedies are required for its cure.

It is highly important to know the true nature of our patient's case. Though we can form some idea from symptoms, the character of the discharges, &c., it will be proper to examine the parts; and if we are apprehensive of much difficulty in arriving at a correct diagnosis, we must employ the speculum. When the disease is within the uterus, the best way to apply the nitrate of silver is to inject the caustic solution, of suitable strength, through a male silver catheter, previously inserted into the *os* uteri, while the patient lies on her back. This operation should be resorted to daily, till marked benefit has resulted from the use of the remedy; after which, every other day, or so, will do very well.

The patient should early be instructed that *cleanliness* is a very important part of the treatment. I recommend daily ablutions of the whole body, and a thorough washing of the vagina night and morning, with tepid water, thrown in by means of a common uterine syringe. The patient should abstain from sexual intercourse during the time she is subject to the disorder, as such indulgence very much retards the curative process.

Women who suffer from this complaint should avoid violent exercise, all kinds of exposure, attend scrupulously to their diet and clothing; and after they have discontinued remedies, they should continue the shower bath, and wash the vagina with a solution of borax, or the sulphate of zinc, twice a day.—(*Boston Med. and Surg. Journal.*)

MATERIA MEDICA AND CHEMISTRY.

Dr. Cogswell on the History of Chloroform and its Use as an Anæsthetic Agent.—The following paper was read at the Medical Society of London, November 28, 1847.—Dr. Cogswell said, however Dr. Simpson's claim may be decided upon as to the priority of administering chloro-

form vapour, (and it now appears the honour is contested by some person or persons alluded to by Mr. Bell, with regard to the human subject, and by M. Flourens, who tried it on an animal,) he is certainly entitled to the credit of giving it a world-wide reputation. From the historical references, by Dr. Pereira, in the *Pharmaceutical Journal*, lately re-published in the *Medical Gazette*, it would appear that chloroform was obtained by Mr. Samuel Guthrie, of Sacket's Harbour, New York, by distilling a mixture of chloride of lime and alcohol. He supposed, however, that he had only procured chloride of olefiant gas, or chloric ether, by a new process. His communication in *Silliman's American Journal of Science and Art* for January, 1832, is entitled, a "New mode of preparing a spirituous solution of Chloric Ether." And he proceeds to state, that he had used the product very freely during the previous six months, to the point of intoxication; that he had found it singularly grateful, producing promptly a lively flow of animal spirits and consequent loquacity, and leaving little of the depression consequent on the use of ardent spirits; that it promises much as a remedy in cases requiring a safe, quick, energetic, and palatable stimulus, and that for drinking it requires an equal weight of water. Subsequently, Dr. J. Black, of Bolton, in the *Medical Gazette* of September, 1833, has an article on the same chemical product, headed, "Chloric Ether: New Remedy in Spasmodic Asthma." He calls this ether a solution of chloride of carbon in alcohol: mentions it as "brought into use by our American brethren," considers it a most agreeable and diffusive cordial, and likely to be of service in spasmodic and adynamic states; and adds, "I have used it frequently in doses of about half a drachm, according to its strength, and from my short experience I am disposed to think it will be of more positive benefit than any of the muriatic or sulphuric ethers." For this reference I am likewise indebted to Dr. Pereira. Following the same authority, we find that about the same time as Mr. Guthrie, M. Souberin also distilled a mixture of alcohol and chloride of lime, and after a somewhat erroneous analysis, named the product bichloric ether. A division of his paper in the *Annales de Chimie et de Physique* for 1831, on the combinations of chlorine, is headed, "Action du Chlore du Choux sur l'Alcohol." Next Liebig examined the product, and finding no hydrogen, termed it chloride of carbon. Thus far its real composition remained unascertained.

In 1834 M. Dumas determined its true elementary constitution, and gave it the name of Chloroform, which, together with that of Perchloride of Formyle, since proposed by Liebig, it continues to bear almost indifferently. In 1842, Dr. Glover, of Newcastle, (a corresponding member of this Society, and author of its Fothergillian prize essay on Scrofula,) published in the *Edinburgh Medical and Surgical Journal*, an essay on Bromine and its compounds, which had gained him the Harveian prize of Edinburgh. A chapter of this publication treats "of the physiological properties of the bromide and chloride of olefiant gas, of kromoform, chloroform, and iodoform." In a similar essay of mine some years before, on iodine and its compounds, I had remarked, that whereas the physiological action of the metallic compounds is characterized sometimes by the predominances of one element, sometimes of the other, the sesqui-iodide of carbon, as it was called (iodoform), seems to throw off all connexion with the group, and by its singular action on the nervous system allies itself to certain organic agents, such as strychnine and brucine. Struck with this result, as he has stated, Dr. Glover examined the action of the other bodies just named, using chloroform particularly, as the most characteristic, and noticed, among other effects, that the lungs become congested, and the spinal cord loses its sensibility, under the influences of this class of poisons. He suggested, however, that their properties were "not unlikely to be beneficial in the treatment of disease." There is nothing obscure or hesitating in Dr. Glover's conclusions, which were prominently put forward in the press. He used the liquid chloroform by injection into the stomach, the blood vessels, and the peritonæal cavity.

The employment of chloroform, in the form of vapour, is mentioned in the *Pharmaceutical Journal* for February 1847, where the Editor, in a note to a communication "On the inhalation of the vapour of (sulphuric) ether," says, "Chloric ether has been tried in some cases with success; it is more pleasant to the taste, but appears to be rather less powerful in its effects than sulphuric ether." There is nothing in the journal itself to denote that this chloric ether was chloroform, or that the experimentalist was Mr. Bell himself, but we are assured of both facts by a competent authority in the *Medical Gazette*.* Subsequently M. Flourens caused an animal to respire the vapour of chloroform, so that it became unconscious of pain under a severe vivisection.

I have reason to know that Dr. Pareira has been in the frequent habit of using chloroform medicinally, both in hospital and private practice, for several years past.—*London Medical Gazette.*

Patent Inks, and New Salts of Gold, Patentee—Rev J. B. READE, of Stone Vicarage, Aylesbury. *Blue Writing Ink.*—1st. I manufacture, in manner following, a blue writing ink, which is wholly free from acid, and therefore well adapted for use with steel pens. I first obtain a solution of iodide of iron by the process ordinarily followed for that purpose, and then dissolve therein half the weight of iodine already employed. I next pour this mixture into a semi-saturated solution of yellow prussiate of potash, employing a weight of this salt nearly equal to the whole weight of iodine used in the above iodine solution. A decomposition of the materials thus brought together immediately takes place, when the cyanogen (of the prussiate of potash) and iron combine, and are precipitated in a solid form, and the potassium (of the prussiate) and iodine combine to form a neutral iodide of potassium, which remains in solution with a little excess of iodide of iron. I next filter and wash the solid precipitate of cyanogen and iron (which is soluble Prussian blue), and finally dissolve it in water, which forms the blue ink required. In this process, it will be observed that neither any acid nor persalt of iron is employed, as is usual in the formation of Prussian blue.

I was led to these results by a microscopical examination of the metallic colours in salts of the ashes of plants. I employed iron and iodine to produce the same effects on pure salts; and in the course of my experiments I ascertained that these two substances (iron and iodine) have so great an affinity for each other, that when placed together without any water, or when rubbed together, they very speedily form a liquid, containing an excess of iodine in solution, which, being added to a prussiate of potash, gives the compound of cyanogen and iron, or soluble Prussian blue, which has been just described. The addition of water alters the character of this iodine solution; without water it turns litmus paper green, and with water, it has the usual acid reaction, thus apparently confirming Davy's original doubt as to the elementary character of iodine.

2nd. I form a neutral *iodide of potassium*, of great purity, and wholly free from alkaline reaction, in manner following:—I take the solution which remained over from the process first described, after the prussian blue had been precipitated, which solution consisted, as before stated, of a neutral iodide of potassium, with iodide of iron in excess; and I get rid of that excess by the well-known processes of fusion and crystalization. The result is an iodide of potassium, which is as pure as when iodine and potassium are made to act directly on one another, and is perfectly free from the alkaline reaction on turmeric paper, which invariably characterizes the most careful preparation of this salt when carbonate of potassa is employed (as usual) in its manufacture. It is also much less deliquescent than the ordinary iodide of potassium of commerce, and on account of its great purity, much to be preferred in medicinal preparations.

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* It was used by Mr. Arnott in operations at the Middlesex Hospital,—ED. GAZ.

Black Writing Ink.—3rd. I manufacture a very superior black ink, by adding to gall ink of a good quality soluable Prussian blue, described under the first head of this specification. The addition of this Prussian blue makes the ink, which was already proof against alkalies, equally proof against acids, and forms a writing fluid which cannot be erased from paper by any common method of fraudulent obliteration without the destruction of the paper.

Red Writing Ink.—4th. I manufacture, in manner following, a red writing ink, which is greatly superior to the common solutions from peach-wood and Brazil-wood, not only in permanent brilliancy of colour, but also in its freedom from acid, and consequent fitness for use with steel pens. I first boil cochineal repeatedly in successive quantities of pure water, till it ceases, or nearly so, to give out any colouring matter. I then boil in water containing liquor ammoniæ, which combines after the manner of an alkali with an acid, with the residue of colouring matter, and leaves the insect matter nearly white. The liquid products of these successive boilings are then thrown together into an earthenware vessel, and in order to get rid of a peculiar element or principle still combined with the colouring matter, and which has a great affinity for iron, I precipitate the colouring matter with ammonio-bichloride of tin. The precipitate is afterwards dissolved in ammonia, and protiodide of tin added, till a sufficient degree of brilliancy of colour is obtained, which completes the process, water being added *ad libitum*, according to the degree of body desired to be given to the ink.

Marking Ink, No. 1.—5th. I manufacture by the improved process following a marking ink, which may be used with steel pens, and is not only of great intensity of colour, but comes out most readily on the application of heat. I rub together in a mortar nitrate of silver, and the proper equivalent of tartaric acid in a dry state. I then add water, in which crystals of tartrate of silver are formed and the nitric acid set free. I next neutralize this acid by adding liquor ammoniæ, which also dissolves the tartrate of silver. I finally add gum, colouring matter, and water, in the usual way, and in quantities which may be varied at pleasure. By this process the nitric acid, which is essential to a good marking ink, is retained, and the tartrate of silver formed is soluble in less than half the quantity of liquor ammoniæ ordinarily required when tartrate of silver is the basis of the ink. The tedious operation of filtering and washing the carbonate of silver, in order to form the tartrate, is also thereby entirely dispensed with.

Marking Ink, No. 2.—6th. I manufacture, in manner following, a marking ink, differing from the preceding, and all other marking inks, containing salts of silver only, in this respect, that it cannot be acted upon by the common solvents of salts of silver, as cyanide of potassium or chloride of lime, and so far, therefore, more indelible. I take the ink, as it has been formed by the process last described, and add to it an ammoniacal solution of oxide, or salt of gold. I have used for this purpose, the purple of Cassius, the hydrosulphite of gold, the ammonio iodide of gold, and the ammonio-periodide of gold. The two last salts, which I believe to be new salts, I obtain by dissolving iodine in liquor ammoniæ, under the application of heat; an operation, however, which requires to be conducted with great caution, in order to prevent the formation of the explosive compound, the teriodide of nitrogen. This iodine is a very speedy solvent of gold. If gold leaf be placed upon it without the addition of water, a black oxide of gold is formed, which immediately dissolves, but if it be diluted with water, the process of oxidation is less rapid, and the gold assumes a fine purple colour (not black) before solution. This salt of gold crystallizes in four-sided prisms, which are soluble in water. A few drops of this solution placed on a slip of glass, generally form microscopic arborescent crystals, from which, under the application of heat, both the iodine and ammoniæ may be volatilized, and arborescent metallic gold alone remains. If a moderate heat only is employed, one equivalent only is dispelled, and white crystals of ammonio-iodide of gold remain.—*Pharm. Jour.*

MISCELLANEOUS.

Progress of Cholera.—According to the most recent accounts from St. Petersburg, the cholera continued to decrease at Moscow. Between the 22d November and the 6th December, 506 cases occurred, 229 of which had terminated fatally. The average number of cases was consequently 30 per day, and of deaths 16. The epidemy had likewise manifested itself, but without much violence, in the governments of Minsk and of Podolia. At Mohileff, in White Russia, the number of patients was, at the latter end of November, 236, and of deaths 35. The malady was fast subsiding in all the other provinces.

The *Journal des Débats* publishes the following letter, dated Mossul (a large town in Asiatic Turkey), the 31st of October:—"The cholera has appeared here at the very moment when it was least expected. The persons attacked died almost suddenly. The Pasha immediately issued an order forbidding that any fruit should be sold to the troops, whom he has removed to a camp at some distance from the town. The appearance of the scourge is the more alarming as there are but two physicians in the city."—*London Medical Gazette, December* 31.

THE

British American Journal.

MONTREAL, FEBRUARY 1, 1848.

THE DOINGS OF THE "REPEAL ASSOCIATION."

Editors of Journals have occasionally disagreeable duties to perform; and of these, since the period of the existence of this Journal, we have had sufficient. It has been our painful duty to criticise, from time to time, as occasion demanded, the proceedings of a party arrayed against us medico-politically, among whom were ranked many of our personal, and most intimate friends. We considered their proceedings as hostile to the best interests of the profession, and stated our reasons for considering them so. Our duty, with a single eye to the advancement of the interests of the Profession, was discharged; and although our private feelings were in many instances sacrificed to the stern dictate of an imperious duty, we hesitated not; and have found, that we have added to our friends, while the unswerving advocacy of our principles has created no enemies. We have had occasion to rejoice in the issue of our labours. Mutual concessions have secured to the Profession valued privileges, in the Act of Incorporation which passed the Legislature at its last session.

It is but a few short months since the boon has been conferred upon us. Its practical operation has not been tested; its by-laws not yet sanctioned by the members; and yet before its value has been ascertained, before its influence has been brought to bear, while its provisions are still a crudity, because unacted upon—a party has sprung up to denounce it, and to seek its repeal; and this party, composed chiefly of those who eagerly sought for its enactment. Yet such is the fact. We have been frequently amused at the avidity with which a child seeks for a toy; no sooner is it obtained, than a fitful freak

takes possession of its breast, and the engrossing object of its former desires is exchanged for another. We cannot forbear the simile, however disagreeable it may be to the party alluded to.

It is proposed that the present bill be repealed, and another substituted in its place; the particulars of which are briefly as follow:—The abolition of the Act of Incorporation; the establishment of two Elective Boards for the Districts of Montreal and Quebec; the examination of British Graduates; and the obtention of an *ad practicandum* character for certificates of qualification from the Incorporated Schools of Medicine.

Now, our intention is not to deal with these several points at any length. We would wish, however, to ask the movers of the opposition, who were so strenuous for an act of incorporation a few short months ago, their reasons for so abrupt a change of opinion on the matter. If they deemed the profession worthy of an act of incorporation then, why is it not equally worthy now? We will most cheerfully yield up our columns for an enumeration of the cogent reasons which may have conspired to this conclusion. To this, we think, the profession at large is entitled.

The other proposals alluded to, and which with the former compose the principal features of the proposed bill, have been repeatedly and fully discussed in this journal. Their injurious tendency has been exposed, and that they should be *now* maintained, convinces us more forcibly than ever, that there is a spirit abroad which would seek to assert a Franco-Canadian supremacy over the Anglo-Canadian or British, which the latter are disposed to share with the former—a proposition which appears to be indignantly spurned.

The party alluded to will excuse us for stating, in terms as distinct and explicit as the English language will permit, that we doubt the purity of their intentions. Were their conduct dictated by *disinterested* feelings towards the profession, as a profession, they would have waited to ascertain the working of the present bill before seeking for its repeal. No legislative enactment can be called inoperative until tried; and to this test the present bill, it is most notorious, has not been submitted.

The 11th clause of the 2d chapter is so rich in its way, that we cannot forbear transcribing it. The mental calibre of the presiding genius of the Association may be now accurately measured. The clause runs as follows: "That any person who shall, without authority, assume the title of Doctor (medicin) or any other title indicative of qualification to practise medicine, or one of its branches, shall be subject to a fine of not less than £5 for each offence; and such penalty shall be recovered on the oath of any two credible witnesses; and on a repetition of the offence, with inability to pay the amount of the penalty, he shall be incarcerated in the common prison of the district in which the offence shall have been committed, for a period of not less than six months"!!! Shade of Paracelsus! We have heard of persons being frightened at shadows, but here is a literal exemplification of it. With what tender care is the mere title cherished, doubtless under the idea, that Legislative protection of the name, will add materially to that confidence on the part of the public which the possessor by his education or otherwise could not succeed in commanding. Henceforward how bright the halo, how dazzling the refulgence, attached to the word DOCTOR! The student, toiling by his midnight lamp, will have something now to work for. The coronet on lordly brow possesses not one tithe the charm. Its magic influence will be great indeed. Disease will vanish, when brought within the sound of the euphoneous title; the utterance of the word, the name itself, possessing an influence equal to that of charm, or saintly amulet, and compensating for blue pills and plasters.

The subject, however, broached in the clause, upon which we have animadverted in the most serious manner of which we are capable, is one of some importance to the Profession. We thank the Association for forcing the matter upon us. Who are they who are rightly entitled to the appellation of Doctor? Can the mere Provincial licentiate, justly claim the title? We trow not. It may be conceded as a matter of courtesy; but none but graduates have any just right to it. And in this view of the question, a view too taken of it by the Profession in every country, as the assumption of the title would be without authority, the authority which can only impart a right to it, viz., graduation, we think it would be no difficult matter to convict a goodly number of the "repeal" party themselves, and to render them amenable to the penalties of their own clause. Yet so the bubble swims and bursts.

There is a circumstance connected with these proceedings, which we cannot forbear noticing. It is the countenance afforded to them by several Governors of the College of Physicians and Surgeons. We have especial reference to one, who a few short weeks ago signed his name as a Governor, to a testimonial to a gentleman leaving the District of Three Rivers to resume his practice in Quebec, and whose name now figures as one who will receive signatures for the support of the new Bill. The names of at least two Governors in this District have also reached us, who not only countenance but have taken an active part in the opposition to the College of which they themselves have been elected by the members Governors. We cannot stigmatise such

conduct too severely. In acting thus they have betrayed the confidence reposed in them. The first impulse of an honourable mind would have been a resignation of that trust, before sanctioning proceedings tending to annihilate that Institution which by every principle of honour they were in an especial manner bound to sustain. The remarkable degree of fitness for office which they have thus displayed, and their consistency, will, we trust, form a matter for consideration at the May meeting, of the members of the Corporation; and it is not too much to anticipate that their defection will be adequately rewarded.

Chloroform.—Two instances of the application of this anæsthetic agent have occurred in this city within the last week—one a case of parturition, reported in this number by Dr. Holmes, the other an amputation at the Montreal General Hospital, by which its soporific powers were most successfully brought into play. This case, we hope, will be reported also, and we therefore forbear anticipating any of Dr. Sutherland's remarks on it. From what we have seen, we consider it as more valuable in its effects than ether, and (which is of some moment) less expensive. It is easily prepared; and for the benefit of our country subscribers, who may have difficulty in obtaining it from this city, in which it is largely manufactured by S. J. Lyman & Co., we give the following formula:—Take of Chloride of Lime four ounces, Alcohol one ounce, Water twelve ounces—mix in a capacious retort, and distil with a moderate heat. Two fluids come over, one of which, oily and heavier than the other, collects at the bottom of the receiver properly adapted to the retort. This is the Chloroform, and requires to be separated by, in the first instance, a decantation of the supernatant fluid, and to be purified and rectified, in the second, by a re-distillation from Chloride of Calcium. The quantity thus obtained is small. The secret of its economical manufacture consists in the employment of large quantities of the materials. We refer our readers to the Periscopic Department for full quotations from our British exchanges on the subject.

Returns of Diseases of Immigrants.—From an attentive correspondent in Dublin, we have received a letter, requesting us to publish returns of the diseases of the Immigrants, at the different hospitals and stations in the Province. We have, in a preceding number, called the attention of Emigrant Hospital Physicians to this subject. Our correspondent informs us that a return is eagerly looked for by the Profession at home; and we hope, that now when the importance of the thing is alluded to, our request will be complied with. The statistics of diseases of immigrants, is invested with considerable interest as regards the endemic influence of the country.

Our American Exchanges.—Since the 1st of December last, none of our exchanges have come to hand, with the exception of the *Annalist*, the *Medical Examiner*, and *American Journal of Dental Science*. We have already called our contemporaries' attention to the circumstance, and do it again. We wish our fyles complete for reference. There must be a serious want of management somewhere; but we desire not to be victimised by it, without giving the requisite information.

Notice to Subscribers.—Two Collectors from the office of this journal are, at the present moment, on a tour in Canada West, collecting the subscriptions and arrears due to this journal. Messrs. Wood and Wadsworth, who are taking different routes, will shortly wait upon subscribers. The subscriptions, individually small, when collectively considered, constitute a large amount, which it would be highly desirable to receive as early as possible.

OBITUARY.

On the 3rd January—Dr. Thomas R. Williams, of the Township of Westminster, aged 38 years.

At Kingston, on the 10th December, Richard Williams, Esq., M. D., Surgeon, half-pay 67th Light Infantry.

At St. Thomas, of enteritis, on Thursday, January 19, 1848, Dr. David James Bowman, one of the earliest physicians of the London district. Dr. Bowman had a most extensive practice, and, contrary to the usual fate of doctors in this province, has left his family in comfortable circumstances.

At London, of Aneurism of the arch of the Aorta, aged 53, Robert Liston, Esq, F. R. S., Professor of Clinical Surgery in University College.

At Berlin, on 11th December, just before commencing his clinical lecture, Dieffenbach, the celebrated Prussian surgeon.

At Camden Town, on 7th December, Dr. Wigan, the well-known author of the work "on the Duality of the mind."

In December last, at Manchester, in his 80th year, Dr. Holme, President of the Literary and Scientific Institution. Dr. Holme has bequeathed the munificent sum of £25,000 to the Medical Department of University College, London.

At Montpelier, in December last, M. Dumas, Prof. of Midwifery in the University of Montpelier.

NOTICE TO CORRESPONDENTS.

Dr. W. H. B. (of Matilda) is informed that the Provincial Medical Board holds its next meeting in Quebec on the second Tuesday of May ensuing.

Dr. Melville's (Niagara) communication has been received. A letter was directed to his address, requesting some additional information, to which a reply is requested. His communication will appear next month.

Dr. Craigie, (Hamilton.) The Meteorological Table will appear in the ensuing Number. It has been received.

Dr. Evans, (Richmond.) We have to acknowledge two letters from Dr. E., and apologise for not answering them, as well as for the omission of his name among the list of Licentiates, which was accidental on our part. It will appear with those of other gentlemen next month; our present space is full.

Dr. J. Douglas, (Quebec) The statistics of the Fever will be most acceptable, not to ourselves alone, but to the Profession out of, as well as in, Canada.

The "Observations on Education," the concluding part of which, from our esteemed correspondent "L," should have appeared in this number, are unavoidably postponed until our next.

We acknowledge also letters from Dr. T. Moore, of Picton, and Dr. Surveyor, of Beauharnois. Their names will appear in the next number, along with others.

Notice of the Honble. Adam Ferrie's Letter on the Subject of the Emigration of the last Year is unavoidably postponed to next issue.

Bill of Mortality for the City of Montreal, for the month ending December 31, 1847.

Diseases		Male.	Female.	Total.	Under 1.	1 & under 3	3 — 5	5 — 10	10 — 15	15 — 25	25 — 35	35 — 45	45 — 55	55 — 75	75 upwards
Epidemic or Infectious,	Small Pox,	.	3	3	.	1	.	2	.	.	.	.	.	.	.
	Scarlatina,	3	1	4	2	.	1	.	1	.	.	.	.	.	.
	Fever, incl. Typh.	31	16	47	2	1	5	4	1	6	9	6	9	4	.
	Dysentery,	2	1	3	.	.	.	.	.	.	1	.	1	1	.
Diseases of Brain and Nervous System,	Dentition,	7	17	24	7	17	.	.	.	.	.	.	.	.	.
	Convulsions,	2	1	3	2	.	.	.	1	.	.	.	.	.	.
	Hydrocephalus,	6	1	7	4	1	1	.	1	.	.	.	.	.	.
	Disease of Brain	1	.	1	.	.	.	.	.	.	.	.	.	1	.
Diseases of Thoracic Viscera,	Consumption,	4	11	15	.	.	.	.	.	5	3	1	4	2	.
	Pneumonia,	2	3	5	2	2	1	.	.	.	.	.	.	.	.
	Congest. of Lungs	.	1	1	1	.	.	.	.	.	.	.	.	.	.
	Croup,	3	1	4	1	.	3	.	.	.	.	.	.	.	.
	Hooping Cough	1	.	1	1	.	.	.	.	.	.	.	.	.	.
	Disease of Heart	.	1	1	.	.	.	.	.	.	.	1	.	.	.
Diseases of Abdominal Viscera,	Diarrhœa	10	2	12	7	4	.	.	1	.	.	.	.	.	.
	Dropsy,	2	5	7	1	1	1	.	.	.	.	1	.	2	1
	Worms	1	.	1	.	1	.	.	.	.	.	.	.	.	.
	Enteritis	1	.	1	.	.	.	.	.	1	.	.	.	.	.
Other causes and Diseases, and Diseases not specially desig. nated,	Debility,	8	5	13	.	.	.	.	.	.	.	.	1	5	7*
	Marasmus	8	7	15	10	5	.	.	.	.	.	.	.	.	.
	Inflammation	7	5	12	6	2	.	1	1	.	.	1	1	.	.
	Unknown,	13	11	24	17	1	.	2	2	.	.	1	1	.	.
	Still-born,	4	1	5	5	.	.	.	.	.	.	.	.	.	.
	Premature Birth	2	.	2	2	.	.	.	.	.	.	.	.	.	.
	Child-birth	.	1	1	.	.	.	.	.	1	.	.	.	.	.
	Other Causes,	3	.	3	.	.	.	.	.	1	1	.	1	.	.
	Total,	121	94	215	70	36	12	9	8	14	14	11	18	15	8

* One aged 93; another aged 100.

MONTHLY METEOROLOGICAL REGISTER AT MONTREAL FOR DECEMBER, 1847.

Date.	Thermometer.				Barometer.				Winds.			Weather.		
	7 A.M.	3 P.M.	10 P.M.	Mean.	7 A.M.	3 P.M.	10 P.M.	Mean	7 A.M.	Noon.	6 P.M.	7 A.M.	3 P.M.	10 P.M
1,	+ 6	+30	+30	+18.–	30.33	30.10	30.05	30.16				Fair	Fair	Fair
2,	" 35	" 34	" 33	" 34.5	29.59	29.59	29.68	29.62				Rain	Foggy	Fair
3,	" 32	" 30	" 26	" 31.–	29.71	29.62	29.56	29.63				Snow	Snow	Snow
4,	" 20	" 24	" 20	" 22.–	29.72	29.87	29.90	29.83				Fair	Fair	Fair
5,	" 24	" 33	" 29	" 28.5	29.79	29.73	29.72	29.75				Snow	Snow	Snow
6,	" 26	" 32	" 27	" 29.–	29.77	29.85	30.05	29.89				Fair	Fair	Fair
7,	" 19	" 34	" 24	" 26.5	30.21	30.19	30.21	30.20				Fair	Fair	o'erc'st
8,	" 19	" 38	" 36	" 28.5	30.19	30.08	29.97	30.08				Fair	Fair	Fair
9,	" 37	" 36	" 44	" 36.5	30.05	29.92	29 69	29.86				o'erc'st	Rain	Rain
10,	" 47	" 52	" 48	" 49.5	29.56	29.52	29.63	29.57				Rain	o'erc'st	Cloudy
11,	" 44	" 40	" 34	" 42.–	29.60	29.80	30.06	29.82				Rain	Cloudy	Fair
12,	" 30	" 38	" 40	" 34.–	30.17	30.10	29.89	30.05				Fair	Cloudy	Rain
13,	" 43	" 41	" 38	" 42.–	29.73	29.75	29 81	29.76				Rain	Rain	Rain
14,	" 33	" 31	" 31	" 32.–	29.86	29.77	29.68	29.77				Rain	Rain	Rain
15,	" 32	" 27	" 15	" 29.5	29.73	29.92	30.20	29.95				Fair	Fair	Cloudy
16,	" 13	" 16	" 12	" 14.5	30.41	30 37	30.22	30.33				Fair	Snow	Fair
17,	" 16	" 20	" 17	" 18.–	30.10	30.00	29.97	30.02				Fair	Fair	Fair
18,	" 15	" 19	" 19	" 17.–	29.97	29.86	29.76	29.86				Fair	Snow	Snow
19,	" 23	" 22	" 16	" 22.–	29.55	29.58	29.80	29.64				Snow	Snow	Fair
20,	" 10	" 14	" 5	" 12.–	29.95	30.05	30 17	30.06				Fair	Fair	Fair
21,	—13	" 3	" 4	— 5.–	30.25	30.12	29.90	30.09				Fair	Fair	o'erc'st
22,	— 1	" 7	" 6	+ 3.–	29.61	29.51	29.42	29.51				Fair	Snow	Cloudy
23,	+ 4	" 17	" 18	" 10.5	29.50	29.40	29 21	29.37				Fair	o'erc'st	Fair
24,	" 20	" 24	" 12	" 22.–	29.22	29.25	29.53	29.33				Fair	Fair	Fair
25,	" 8	" 15	" 4	" 11.5	29.69	29.71	29.70	29.70				Fair	Fair	Fair
26,	" 3	" 4	.0	" 3.5	29.72	29.76	30.00	29.83				Fair	Fair	Fair
27,	— 8	" 9	+10	" 0.5	30.28	30.35	30.22	30.28				Fair	Fair	o'erc'st
28,	+16	" 25	" 26	" 20.5	30.07	29.94	29.98	30.00				Snow	Snow	Snow
29,	" 30	" 37	" 37	" 33.5	29.94	29.86	29.88	29.89				Fair	o'erc'st	Fair
30,	" 38	" 42	" 45	" 40.–	29.82	29.75	29.80	29.79				Fair	Cloudy	Fair
31	" 42	" 40	" 36	" 41.–	29.95	29.95	29.84	29.91				Fair	o'erc'st	Rain

Therm. { Max. Temp., +52° on the 10th
Min. " —13 " 21st
Mean of the Month, +20°9.

Barometer, { Maximum, 30.41 Inches on the 16th.
Minimum, 29.21 " " 23d.
Mean of Month, 29.85 Inches.

MONTHLY METEOROLOGICAL REGISTER AT H.M. MAGNETICAL OBSERVATORY, TORONTO, C. W.—December, 1847.

Latitude 43°. 39′.4. N. Longitude 79°. 21′.5. W. Elevation above Lake Ontario, 108 Feet.—(*For the Brit. Amer. Jour. of Med. and Phys. Science.*)

Day.	Barometer at Temp. of 32°.				Temperature of the Air.				Tension of Vapour.				Humidity of the Air.				Wind.			Rain in.	Weather.
	7 A.M.	3 P.M.	10 P.M.	Mean of 24 h.	7 A.M.	3 P.M.	10P.M.	Mean of 24h	7A M	3 P.M	10P.M	Mean of 24h	7A.M	3P.M	10P.M	Mean of 24h	7 A.M.	3 P.M.	10 P. M.	on surf.	
1,	29.841	29.691	29.588	29.654	32.6°	39.6°	34.1°	36.2°	.173	.171	.180	.168	.94	.71	.93	.80	S.	S. by W.	E.	—	Cl'r till 7 am. Remainder of day overcast, R'ng slightly from 8 pm.
2,	29.430	29.520	29.581	29.525	33.8	37.6	34.2	34.8	.183	.182	.172	.179	.95	.81	.88	.89	Calm.	N. N. W.	Calm.	0.360	R'n ceased at 5h 40m am. Day dens cl'd
3,	29.582	29.553	29.634	29.611	32.9	31.4	28.4	30.0	.166	.142	.135	.146	.89	.80	.85	.87	Calm.	N. N. W.	N. W.	*	Day dens cl'd. Sl't snow fr 8 am till no.
4,	29.726	29.625	29.518	29.640	25.4	30.5	33.2	28.7	.127	.151	.167	.143	.90	.89	.88	.90	WNW	S.	S by W 1.5	—	Day dens cld, Sl't snow fr 11 am till 7 pm
5,	29.520	29.484	—	—	28.4	32.6	—	—	.139	.171	—	—	.89	.93	—	—	S. W.	W. by S.	——	—	Detached passing clouds.
6,	29 715	29.806	29.841	29.808	26.2	32.0	32.4	30.5	.136	.165	.145	.147	.94	.92	.78	.86	Calm.	Calm.	S. by W.	—	Generally clouded.
7,	29.886	29.906	29.918	29.900	32.0	39.2	32.4	34.2	.156	.173	.169	.166	.87	.73	.93	.85	S. S. W.	Calm.	Calm.	—	A few light clouds. Fine day.
8,	29.821	29.685	29.793	29.768	35.4	44.3	41 0	41.2	.167	.234	.231	.208	.81	.81	.91	.81	S.	S.W. by S.	S W by W	—	Gen. cl'd. Faint auroral light 9 pm.
9,	29.817	29.491	29.369	29.510	36.4	41.1	43.9	41.5	.181	.248	.273	.249	.85	.98	.96	.95	Calm.	E.	Calm.	not ap	Dens cld all day. Driz rn fr 8 am to 8 pm
10,	29.343	29.448	29.577	29.481	45.4	45.6	38.6	42.0	.293	.237	.185	.227	.98	.79	.79	.84	S. W.	S W by W	Calm.	0.205	Cloudy. A few clear spaces occas.
11,	29.634	29.855	29.972	29.776	33.2	36.9	26.9	34.0	.183	.144	.133	.172	.97	.66	.89	.87	Calm.	W. by S.	Calm.	0.050	Slight rain from 2 till 5 am. Snowing, 6 to 7 am. Day mostly clear.
12,	29.780	29.675	—	—	37.9	42.0	—	—	.192	.216	—	—	.85	.82	—	—	E.	Calm.	——	—	Lightly overcast.
13,	29.662	29.735	29.788	29.737	36.2	32.8	30.2	32.8	.198	.186	.162	.177	.94	1.00	.96	.95	WNW	Calm.	N.	0.290	Densely overcast. Rain and sleet till 2 pm. Snowing from 3 pm.
14,	29.702	29.577	29.541	29.603	31.4	32.3	31.8	32.2	.160	.172	.169	.168	.91	.95	.95	.93	N E. by N	N. by E.	N. N. W.	0.100	Ceas s'ng 1 a m, Occas sl'rs of sl't & r'n
15,	29.653	29.772	29.933	29.852	31.8	32.0	20.6	25.3	.123	.123	.095	.109	.69	.69	.83	.77	N. by W.	N.	NE. by N	0.110	Gen. clear. Very fine day.
16,	30.092	30.061	29.930	30.002	13.6	19.8	20.6	17.8	.069	.081	.087	.081	.79	.73	.75	.79	N.	N.	Calm.	—	Clear till 4 am. Day cloudy.
17,	29.787	29.736	29.830	29.788	17.6	27.1	21.0	20.9	.076	.119	.092	.092	.75	.79	.79	.79	Calm.	Calm.	Calm.	—	Part cl'd. Faint aur l't 4 & 5 am & 11 pm
18,	29.808	29.647	29.486	29.681	14.0	30.8	31.3	21.7	.081	.145	.147	.122	.93	.83	.83	.88	Calm.	S W. by S.	S.W.by W.	—	Clear till 9 am. Rem. of day cloudy.
19,	29.429	29.578	—	—	33.6	23.2	—	—	.173	.118	—	—	.91	.92	—	—	N.W.	N.	——	—	Partially clouded.
20,	29.822	29.898	30.008	29.942	14.0	15.9	11.2	12.3	.070	.061	.067	.067	.80	.64	.91	.83	N. by W.	N N W	Calm.	—	Gen. cloud. Coronæ of auroral light in Zenith at 5h 20m am.
21,	29.930	29.646	29.413	29.575	10.4	20.2	23.6	19.4	.065	.089	.117	.095	.88	.79	.90	.85	NW by W	SW. by S*	S S W. 2.5	—	Dens cld all day. Sn'ng sl'tly fr 9 pm.
22,	29.180	29.193	29.356	29.262	20.8	24.7	18.6	20.7	.100	.106	.084	.094	.86	.78	.80	.81	W. S. W.	N.W.	W.	—	Ceased sn'g 3 am. Sn'g again fr 8 am to 1 pm.
23,	29.322	29.014	28.954	29.066	17.8	24.2	24.3	22.7	.090	.119	.109	.104	.88	.89	.82	.83	S. W.	SW by W	S W by W	—	Dens o'rc't. Halo r'nd moon at 10 pm.
24,	29.063	29.331	29.394	29.452	20.6	22.0	18.5	18.6	.093	.083	.093	.085	.82	.68	.90	.80	W. by S.	N.W.	W N W	—	Gen. cl'd. Part. of snow falling occas
25,	29.483	29.455	—	—	15.5	18.4	—	—	.087	.100	—	—	.93	.95	—	—	W. by S.	W. by S.	——	—	Generally clouded.
26,	29.725	29.711	—	—	7.2	19.0	—	—	.054	.083	—	—	.83	.80	—	—	Calm.	W.	——	—	A.M clear. P.M. mostly clouded.
27,	30.007	29.918	29.731	29.847	12.4	19.8	22.6	20.2	.071	.090	.121	.100	.86	.81	.97	.86	W.	S. S. W.	S.	—	Clouded all day. Clouded from 4 pm
28,	29.666	29.637	29.696	29.664	30.3	34.0	34.7	34.0	.153	.172	.181	.174	.90	.89	.91	.89	SW by W*	S. W.	Calm.	—	Ceased sn'g 1 am. Drizzling r'n: rom 3 to 5 am. Day cloudy.
29,	29.641	29.624	29.656	29.638	37.3	41.6	38.0	40.1	.203	.214	.211	.213	.92	.82	.93	.87	S. S. W.	S. S. W.	S.S.W.	—	Hazy, but fine till 4 pm.
30,	29.612	29.641	29.726	29.679	40.0	43.8	41.5	42.3	.218	.258	.252	.217	.89	.91	.98	.93	S. S. W.	S W by S	Calm.	—	O'rc't with haze & light clouds all day
31,	29.740	29.630	29.576	29.617	41.2	43.8	43.0	43.4	.254	.271	.263	.269	.99	.97	.97	.97	N. E.	Calm.	Calm.	0.070	Dens o'rc't, thick fog & driz rain all day
Mean	29.672	29.640	29.646	29.6567	27.8	32.4	29.9	30.02	.146	.159	.155	.151	.88	.82	.88	.86	*1.5	*1.5		1.185	1st Jan. Dense fog & drizzling rain continuing till 6 pm.

Highest Barometer, 30.125 at 10 a.m. on 16th. Lowest do. 28.954 at 10 p.m. on 23d } Monthly Range 1.171

Highest Temperature, 49°.6 on 26th, am Lowest do. .. 0°.3 on 10th, at 1p.m. } Monthly Range 49.9

Mean Max. Therm., 32.98—Mean Min. Therm., 23.83.

Mean Daily Range, .. 9°.11

Extreme Daily Range, 22° .7 18th, from 6 am. to 8 pm.

Warmest Hour, 2 pm—Mean temperature, 32.47.

Coldest Hour, 7 am—Mean Temperature, 27.80

Proportion of Wind from each Quarter—

N.W.	117	Total.	
S.W.	193	Winds,	421
S.E.	28	Calms,	203
N.E.	86		
		Obser.,	624

Mean force of the Wind, 0.35 lb.

Maximum force, 9.5 lbs from 11 to noon 23d.

Greates Day's Wind, 21st.—Mean Pressure, 1.04 lbs.

Least do. 31st. " 0.03 lbs.

Temperature for December.

Year.	Mean.	Max.	Min.	Range.
1840, ...	24.8°	42.1°	—3.6°	50.7°
1841, ...	29.9	46.1	+3.1	43.0
1842, ...	25.8	40.5	+4.1	36.4
1843, ...	30.83	48.5	+3.1	45.4
1844, ...	28.93	48.5	+1.6	46.9
1845, ...	21.49	39.7	—2.4	42.1
1846, ...	27.64	49.4	+3.9	45.5
1847, ...	30.02	49.6	—0.3	49.9

Rain.

No. Days.	Inches.
3	not ap
7	6.600
3	0.830
6	1.040
6	Imperf
2	not ap
5	1.215
7	1.185

Wind.

Winds.	Calms	Mean force.
233	79	1.33
478	170	0.74
372	228	0.53
339	261	0.40
441	183	0.70
423	201	0.57
424	200	0.35

Snow No. of days.

18
5
17
8
6
12
9
8

Under the head of Tension of Vapour, is given the elastic force of the Aqueous Vapour in the Atmosphere at each Observation, in decimals of an inch of Mercury, or the proportion of the Barometric pressure due to its presence.

Under the head of Humidity of the Air, is given the proportion the Aqueous Vapour bears to the quantity the air is capable of sustaining at the existing temperature, saturation being represented by 1.00.

The Instruments are Standard Instruments. The Rain Gauge is 27 ft. above the soil.—The Means entered are the Means by 24 hourly Observations, from 6, a.m., to 6, a.m.—The quantity of Rain received for the last 24 hours, is noted at 9, a.m.—The Observations entered at 7 a.m., on Sundays, are actually taken at 9 a.m. The two Observations taken on Sundays are not included in any of the means.

MAGNETIC DISTURBANCES.—Oct. 13th; 20h; to 14th; 1h; slight, 26′.7 of decl. Oct. 22d, 23h, to 23d, 10h, considerable, 1° 38′.9 of decl. Again, 23d, 16h, to 23d, 17h, a shock, 21′.1 of decl. Oct. 24th, 18h, to 25th, 6h, very great, 4° 22′.0. Oct. 29th, 5h, to 29th, 7h, slight, 21′.2. (The earlier part of the great disturbance on the 24th Oct. was not observed, as it began on the Toronto Sunday. The sky was overcast with rain during its whole continuance, but a magnificent display of aurora was visible in Europe.)

* Snow, on the 3d, 4th, and 26th, not appreciable. On the 5th, 0.1; 11th, 1.0; 14th, 5.0; 20th, 0.1; 22d, 0.1; 23d, 0.2; 24th, 0.2; 27th, 0.1. Total, 6.8.