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BRITISH AMERICAN MEDICAL & PHYSICAL JOURNAL.

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[NEW SERIES.]

ART. XLVI.—*Successful Removal of the left half of the Lower Jaw at the Articulation*, by ROBERT L. MAC DONNELL, M.D. late Lecturer on Clinical Medicine at the University of McGill College, &c. &c.

Michael Torrence, aged 46, consulted me on the 10th of Jan. 1851, under the following circumstances:— He stated that five years ago, a small sore appeared upon his lower lip, near the left commissure. This caused scarcely any annoyance at first, and was not considered malignant by the medical men to whom he showed it. The sore made but little progress for the next two years, at the expiration of which time, a small tumor began to grow in the situation of the ulcer. This tumor soon attained the size of a hazel-nut; and although convinced of its cancerous nature, he would not allow it to be removed by the knife, but had a cancer-plaister applied. The plaister remained on for forty days, and produced sloughing, not only of the diseased structure, but of nearly half the lower lip and integument covering the chin. Soon after, he observed a small tumor on the left side of the lower jaw, which was moveable when he first noticed it, but which has been firmly attached to the bone since last August, and has increased rapidly of late.

Present Symptoms.—The disfigurement from the loss of part of the lower lip is very great—a tumor about the size of an egg is firmly attached to the horizontal portion of the left half of the lower jaw, and extends downwards to almost the level of the os hyoides, and exter-

nally to the angle of the jaw, sending also a portion in the direction of the parotid gland. The tumor is quite fixed to the bone, limiting its movements and prevents the mouth being opened to a greater distance than is barely sufficient to admit the fore-finger between the teeth. It is very painful on being touched, and from an opening on its most prominent part, (made by a practitioner to whom he applied) a sanious fluid is constantly oozing. The skin covering this part of the tumor is of a dusky red colour; that covering remainder of the tumor is quite healthy in appearance. The left parotid gland, and the glands low down in the neck on both sides, as well as the submaxillary and sublingual of the opposite side, are free from disease; the tongue also is quite healthy. He has observed that the tumor becomes more painful about four o'clock every evening, and the pain increases gradually until near four o'clock in the morning, when it begins to abate; and consequently he is deprived of sleep during the greater part of the night. His tongue is clean, appetite good, bowels regular; pulse 84, full and soft. No trace of any other disease can be detected. His spirits have latterly been desponding, and he urgently requests that an operation for his relief may be performed.

Having determined to remove the left half of the lower jaw together with the diseased submaxillary and sublingual glands, I proceeded to perform the operation in the following manner, on Jany.

13th, assisted by Drs Hall and David and Mr. Howard the Oculist, and in the presence of Dr. French, Inspector General of Hospitals, Dr. Barrett, Medical Staff, and Dr. Warren and Mr. Stockley of the Artillery, and a number of medical students:—

The patient was placed in the sitting posture on a chair; chloroform was administered with the view of producing anæsthesia, whilst *earlier* parts of the operation were being performed; but its administration had to be discontinued, as it induced convulsive movements of the limbs. As soon however, as the patient had regained his senses the operation was proceeded with.

An incision, commencing a little above the zygoma and about half an inch in front of the ear, was carried down to the angle of the jaw, and thence over the tumor to near the median line of the chin; a second incision, from the angle of the jaw to near the termination of the first, was made in such a direction as to include in an ellipsis the unhealthy portion of skin covering the most prominent part of the tumor, which having been perforated in two places, seemed too much diseased to be left behind. The integument was now dissected upwards. The bleeding from the facial artery being very copious, was arrested by means of a small *presse artère*, which hung upon the vessel until the completion of the operation. On dissecting downwards, the lower flap, the submaxillary and sublingual glands were found to be so much diseased that their complete removal was necessary. This constituted the most difficult part of the operation. The submaxillary occupied nearly the *whole digastric space*, and was firmly attached by fibrous bands to the cornu of the os hyoides; these bands were divided, and in separating the tumor from its internal attachments, the facial vein (which

had escaped the first incision, being imbedded in the diseased mass) was wounded, and bled so profusely that a ligature had to be placed upon it. The gland was now separated from its deep-seated attachments, and being continuous with the sublingual, this latter was left in situ until the bone itself should be removed. The soft parts on the mental portion of the bone were now dissected from it, and the bone sawn through by means of a Hey's saw, a little to the left of the median line, so as to leave undivided, the attachments of the left digastric, genio-hyo-glossus, and genio-hyoid muscles. The masseter was next divided, the bone depressed, the tendon of the temporal cut through, and the articulation entered, from before. The remaining connexion of the soft parts were cut through, and the sublingual gland completely removed. Notwithstanding that seven arteries required ligation, not more than seven or eight ounces of blood were lost, owing to the very efficient assistance rendered by my confrères.

The wound was carefully examined, and no trace of disease remaining, the flaps were brought together by needles and interrupted sutures—a portion of the wound, at its most depending part, being but loosely united, in order to leave room for the ligatures, and for the escape of matter. A small pledget of lint was laid in the course of the removed bone, to fill the cavity and support the cheek.

The patient bore the operation with remarkable firmness, and no collapse ensued.

I cannot speak in sufficiently grateful terms of the able assistance afforded me by the gentlemen who assisted at the operation.

The tumor was found to be of a carcinomatous nature; it was firmly at-

tached to the bone, from the mental foramen to the angle of the jaw, and was throughout this extent incorporated with the substance of the bone. The disease dipped deeper into the bone at its middle portion, and when removed from it, left some of the cancerous matter in the cavities of the latter. It passed behind the angle of the jaw bone, and caused erosion of the osseous structure at this point, and for some distance on the inner part of the ramus. Corresponding to this situation externally, it was adherent to the periosteum, but did not affect the bone itself—this was the part of the mass already described as proceeding towards the parotid gland. The substance of the tumor, and that contained in the structure of the bone, were proved by microscopic examination to be perfectly identical.

Two o'clock p.m.—Feels comfortable and free from pain; pulse 80, soft and full; surface warm; no hæmorrhage.

Six o'clock, p.m.—Has taken some gruel; feels comfortable; no bleeding; pulse 80.

Ten o'clock, p.m.—Going on well.

Jan. 14.—Says he has slept none during the night; appears tranquil.

Jan. 15.—No change; to have beef tea and gruel.

Jan. 16.—Doing well.

Jan. 17.—The sutures and needles were removed to-day, and the wound was found to have united throughout its whole extent, except for a space of about an inch and a half at its lowest border. Through this opening, matter is freely oozing. The flap was supported by straps of adhesive plaister, and a chloride of sodium gargle ordered to be used frequently, to control the fœtor.

Jan. 27.—The lower part of the wound looks healthy, and granulating; heligatures are however still adherent.

He is able to walk about, and takes food of a more consistent nature.

Jan. 28th.—The ligatures have also come away—going on well.

Montreal, Feb. 1, 1851.

ART. XLVII.—*Case of Scarlatina, with Immense Tumefaction of the Amygdalæ and Laryngo-pnaryngeæ Mucous Membrane Threatening Suffocation; Operation of Tracheotomy—Recovery.* By ALFRED JACKSON, L.R.C.S.E., *Visiting Physician to the Marine and Emigrant Hospital, Lecturer on Chemistry and Clinical Surgery Quebec School of Medicine, &c.*

I was called at 10 o'clock in the morning of the 23rd October to see James Black, aged 13 years. The boy had been complaining for two or three days, previous to my seeing him, of slight indisposition, but had been to school the day before. While at school he complained of sore throat, and was sent home by the master. At the time of my visit I found him with fever, skin red particularly about the face and chest, considerable difficulty in respiration pulse 80, tongue slightly coated; the parts about the fauces highly inflamed, tonsils very much tumefied, considerable difficulty in articulation. No tumefaction about the external parts of the throat, bowels had been freely moved by senna and salts the day before. Ordered leeches to the external parts of the throat, to be followed by hot poultices, and to take saline mixture with small dozes of tartar emetic once every three hours.

Seven, P.M., leeches bled well, but the tumefaction, and consequently the difficulty in respiration, had increased; the latter to such a degree that at each inspiration the head was thrown back, and a sound produced similar to that heard in some cases of croup. I requested a consultation, and Doctor J. A. Sewell saw him with me about

eight o'clock. Symptoms much the same, difficulty of breathing very great. It was agreed that the tumefied parts should be freely scarified; this was done and the parts bled freely. Large bran poultices to be applied to the throat—difficulty in deglutition so great that he could not take medicine.

24th, 9, A.M. Saw him in consultation; rather better; tumefaction much the same; difficulty of breathing rather less; could articulate, but not distinctly. To have solut. arg. nit. (20 grs. to the ounce) applied to the tumefied parts, and small doses of hydr. chlor. pulv. ant. and opium every three hours.

Saw him alone about 7, P.M., when I found all the symptoms very much aggravated; the difficulty in respiration had increased to such a degree that danger of suffocation was imminent; head very much thrown back; great action of the muscles of respiration, but very little air entered the lungs; slight coma, but could be roused; physical signs of engorgement of the lungs. It was evident that without surgical interference the boy could not live many hours; and I at once made up my mind to open the trachea, should it meet with the approbation of Dr. Sewell, who was immediately sent for. On seeing the patient, Dr. S. was of opinion that nothing less could save life. The patient was placed upon a bed with pillows to elevate the shoulders, the head was thrown back, and an incision made exposing the rings of the trachea below the isthmus of the thyroid gland; two of the rings were then divided, but this not proving sufficiently large to admit the tracheal tube, another ring was subsequently divided; very little blood escaped, and but slight spasmodic action, manifested itself. The poor boy immediately obtained relief, and expressed his gratitude by an earnest grasp of

the hand. Respiration took place entirely through the tube, which was fastened, and retained in the trachea. He was ordered to keep small pieces of ice constantly in his mouth, and perfect quietness enjoined.

25th, 8, P.M. Has had a good night; fever less, tumefaction rather less, respiration entirely through the tube, has not been able to swallow, perfectly sensible, and with a pencil writes that he feels no pain. From that time he gradually recovered, the tumefaction about the throat subsiding so that he could swallow on the second day; on the third subsequent to the operation, respiration returned through the natural passage, and on the fourth I removed the tube. The boy had not a single bad symptom, and is now going about perfectly well.

Quebec, 16th December, 1850.

ART. XLVIII.—*Nævi Materni*.—By VON IFFLAND, M.D., M.R.C.S.L., Beauport.

The following case, although offering nothing of any practical utility, affords another of those—as yet—unexplained phenomena which have so often engaged the attention and researches of several of our most distinguished physicians and writers, on the complicated and multiplied actions of the animal economy; but on this, as on others, they have also found limits to their inquiries—limits, concerning the powers and laws of nature, which neither industry nor ingenuity has enabled them to penetrate:—

On the afternoon of the 16th instant, I was requested to attend to the accouchement of Mrs. (François) Cambré of Beauport, then reaching her full term of pregnancy. My attention on seeing her was particularly directed to an enlargement of the neck, involving the

thyroid gland, and extending to both sides. Upon enquiring as to the time of its occurrence, she informed me that about a month since—that is, in the eighth month of her pregnancy—the swelling in question, soft, spongy and elastic, and bearing all the characteristics of bronchocele, made its appearance, almost spontaneously, and was then of the same size as at the time she first perceived it; and that apart from its obstructing her breathing when in a horizontal position, it gave her no uneasiness, and believing that it entirely depended upon her pregnant state, she was consoled in the prospect of its being dispelled after confinement.

In the evening, I delivered her of a full grown and fine female child, but to my astonishment bearing a large swelling on the neck, and similar to that of the mother—in fact, a perfect duplicate of bronchocele, (proportions considered.)

I visited and particularly examined the mother and child on the two subsequent days, and found the swellings in both much the same as when I first saw them, save their being softer to the feeling, and that the mother was free from any difficulty in breathing.

You have, in the above, a simple and faithful statement of natural phenomena, but, from being so involved in obscurity, I shall abstain from the presumption of attempting to explain, as others have done before me, by the concatenation of actions, superabundance of nutritive particles, and by such laws and agencies as oftentimes diverge from the

route of precise observation, and lead into some of the numerous paths of error, rather than into the single one of truth. It would indeed be considered superfluous, if not vain and futile, to search into such natural phenomena, as result from a certain mode of organization, and composed of matter, respecting whose properties and regulation by laws, nothing more than conjectures can be naturally formed.

“*Quin etiam obest plerumque us, qui discere volant auctoritas eorumque se docere profitentur, desinunt enim suum judicium adhibere: id habent ratum, quod ab eo quem probant judicatum vident.*”—(Cicero de Natura Deorum.)

The common physiological acceptation of *Nævi Materni*, is the supposition that it originated from impressions made on the mind of the mother during pregnancy, and here it rests. In the above case, however, we have not only the transmission of the mental impression of the mother to the *fœtus in utero*, but also the communication of a similar organised mass, which but four weeks before had made its appearance spontaneously on her own neck. I should also desire to call attention to the period of gestation at which the swelling in the neck, or *bronchocèle*, made its appearance—the circumstance of her having never been similarly affected in her life, nor any of the eight children to whom she had already given birth.

BEAUFORT, 20th Dec., 1850.

ART. XLIX.—Mean Results of Meteorological Observations at Hamilton, Canada West, for the year 1850. By DR. CRAIGIE.

1850	THERMOMETER.				BAROMETER.			WEATHER.				YEARS.		
	MONTHS.	9 a. m.	9 p. m.	MEAN.	HIGHEST.	LOWEST.	MEAN.	HIGHEST.	LOWEST.	DAYS	RAINY.		SLIGHT SHOWERS.	DRY.
January..	30.61	31.35	30.98	50 ^r	15 ^o	29.71	30.18	28.96	6	3	22	1846...50.215 ^o		
February	20.428	31.50	30.464	59	8	29.593	30.26	28.78	5	5	18	1847...48.163		
March....	33.00	33.74	33.37	60	14	29.626	30.22	28.70	2	6	24	1848...49.295		
April.....	41.46	40.9	41.19	80	21	29.614	30.05	28.95	5	6	19	1849...48.105		
May.....	53.60	51.4	52.50	90	36	29.691	30.00	29.00	1	5	5	1850...48.732		
June.....	70.56	68.1	69.33	95	46	29.738	30.00	29.50	0	8	22			
July.....	74.29	73.39	73.84	101	56	29.691	29.88	29.48	5	5	21			
August..	71.74	70.97	71.355	100	52	29.691	29.95	29.40	5	7	19			
Septem..	61.76	60.43	61.1	86	37	29.715	30.02	29.44	3	5	22			
October..	49.30	49.7	49.5	78	31	29.657	30.00	29.30	3	8	20			
Novem...	42.00	43.73	42.866	71	22	29.717	30.10	29.30	4	4	5			
Decem...	28.355	28.225	28.29	52	0	29.70	30.22	29.10	7	8	16			
Mean Temperature of yr. 48.732											45	71	249	5 years 48.902
29.673 mean height														

ART. L.—*Abstract from Meteorological Tables kept at Montreal by Register Thermometers.*—By REV. J. BETHUNE, D.D.

	1846			1847			1848			1849			1850		
	MAX.	MIN.	MEAN.												
January,	48	-12	19	36	-10	13	46	-15	18	41	-23	9	38	-9	16
February,	45	-5	18	46	-12	18	49	-6	28	44	-25	6	50	-19	20
March,	54	-2	34	42	4	22	65	-3	29	58	-6	29	61	-9	28
April,	67	19	42	54	4	31	74	18	46	66	10	39	76	10	41
May,	78	28	54	82	26	56	91	38	62	78	27	52	79	33	53
June,	88	40	61	90	36	68	97	38	70	96	43	67	91	46	65
July,	85	46	68	99	43	70	96	50	70	98	49	72	90	50	75
August,	90	53	70	82	48	67	94	48	69	94	56	68	88	47	68
September,	91	38	55	75	34	54	87	24	50	84	36	59	88	36	61
October,	70	18	43	68	19	42	63	22	43	62	27	46	74	28	49
November,	62	13	34	60	-6	32	54	9	27	63	21	42	57	21	37
December,	36	-4	17	50	-15	19	48	-11	24	35	-17	16	44	-12	13
ANNUAL MEAN TEMPERATURE.	42.91			41.00			44.00			42.08			43.83		

Mean Temperature for the above 5 years..... 42.76

Number of days in each year below Zero:—

1846... 21 | 1847... 29 | 1848... 25 | 1849... 40 | 1850... 35

Average number below Zero in 5 years..... 30 days.

ART. LI.—*The Horse and its Diseases;—Lamenesses;—Exostosis;—Splint;—Spavin;—Ringbone.*—By J. B. TURNER, V. S.

Ringbone.—This is an *Exostosis* of the *Os Coronæ*, or lesser pastern bone, and is so called because it frequently encircles the whole bone, forming as it were a ring around it between the coronet and fetlock joint. It often happens that there are two lateral swellings only, and that the circle is never completed, but the character of the disease is the same in both cases. When the swellings are only lateral, they have commonly their origin within the side cartilage, and in those instances the heat and lameness is not so great as when the pastern bones or coronary ligaments are the seat of disease. These lateral cases, are generally found in aged and hard-worked horses. This ossification of the

side cartilages is often called "false ringbone," but ringbones, whether true or false, are attributable to the same cause—that is, neither more nor less than hard, fast work on hard roads; and perhaps in ninety-nine cases out of a hundred, helped on by bad shoeing; they arise from the jar or concussion of the pastern joint, or from a strain of its ligaments, and may come on rapidly or slowly. The slow approach of this disease is the most common, and horses may be lame for some time and the seat of the lameness be imperceptible; but in a little while a ringbone makes its appearance, small at first, but gradually enlarging till the fatal circle is completed, the cartilages being finally involved. There are cases, however, in which the ossific deposit is arrested, and without surgical aid, the horse con-

tinuing to work as well as ever. The hind-legs are subject to ringbone as well as the fore. Horses with short, upright, joints, are very liable to this disease, particularly if they have also high action, because the concussion is greater by reason of the absence of the elasticity given by a somewhat long and sloping pastern. Ringbones often appear in young colts broken in by too heavy a rider, and from suddenly being thrown on their haunches during training, whereby the ligaments are strained and inflamed.

TREATMENT.—This is unfortunately very unsatisfactory—in fact in the advanced stages of ringbone, it is useless to do anything. In the earlier stages, we may try to abate its progress, by bleeding at the toe to arrest the accompanying inflammation, and then by evaporating lotions; after the inflammation is reduced, we may apply the firing iron or blister with the common *unguentum Lytle*, or with a mixture of iodine and strong mercurial ointment. It is possible that the deuto-ioduret of mercury may be useful in these cases. The animal should, if the season permit, have long rest by being turned out to grass, and after being taken up we may endeavour to lessen the concussion, by placing a piece of thick felt or leather between the shoe and hoof, taking care that the part applied to the heel is the thickest.

FALSE RINGBONE, or ossification of the lateral cartilages, is also the effect of concussion, and is continually found in heavy horses with high action and more particularly in towns with hard paved streets. There is hardly a dray horse in London free from it, and it is there a common practice to relieve the horse by *neurotomy*, or division of the nerve furnishing the foot

with sensibility; of this operation we shall speak at some future time.

TREATMENT.—This would be much the same as for true ringbone, paying however most particular attention to diminish the concussion by a bar shoe, lightly resting on the frogs with a leather sole between it and the foot.

ANCHYLOSIS.—It is almost unnecessary to say that as bone spavin often results in complete ankylosis of the hock joint, so does ringbone in that of the pastern. The greater and lesser pastern bones become connected by bone instead of ligament, and thence results an ankylosed joint. From this joint the ossific deposit proceeds to attack the cartilages, and then the union between the lesser pastern and the navicular bone, and then between them and the coffin bone; all the motion between these important parts is destroyed, and the whole of the hind part of the foot becomes a mass of spongy bone. It is needless to say that in such cases surgical treatment is without avail.

A WORD OF ADVICE.—Medical men in country practice have often opportunities of giving advice to farmers. Now the writer has no manner of doubt whatever but that *exostoses*, splint, spavin, and ringbone, are not only the results of inflammation—whether that inflammation be primarily caused by hard work or sudden violent exertion, or be secondarily caused by metastasis from some other part or organ, as is often the case—but are also hereditary. Spavin and ringbone, and those of the worst description, are remarkably prevalent in Canada, and observation has induced the conclusion in the writer's mind, that in very many cases they are hereditary. He has seen colts that never did a day's work with very large ringbones on all four legs, and others with spavins. How is this? It cannot

be the result of work, for the animals have done none—the conclusion then is that the disease is hereditary; and the writer is confident that if the history of such cases could be enquired into, it would be found that the spavined and ringboned colts were the produce of either a sire or dam similarly affected. That this may not be supposed a crotchety opinion of the writer, he will quote one of the highest authorities on such matters—the late Mr. Youatt:—“The first axiom we would lay down is, that ‘like will produce like,’ that the progeny will inherit the qualities, or the mingled qualities, of the parents. We would refer to the subject of diseases, and again state our perfect conviction that there is scarcely one by which either of the parents is affected, that the foal will not inherit, or at least the predisposition to it; even the consequences of its usage or hard work will descend to the progeny. We have had proof upon proof that blindness, roaring, thick wind, broken wind, spavins, curbs, ringbones and founder, have been bequeathed by the sire or the dam to the offspring.”

It must also not be forgotten that though these diseases may not appear in the immediate progeny, they frequently will, by some mysterious law of nature, well known in its effects among medical men, show themselves in the next generation.

Medical men in the country have therefore the opportunity to offer some good advice on this matter to their neighbours, and caution them that if they expect or desire to have sound, serviceable, valuable colts, they must breed from sound sires and dams. On this matter of breeding we shall speak more at length in some future paper.

Ringbone is a decided unsoundness in law, in England and in France.

- ART. LII.—1. *Geological Survey of Canada: Report of Progress for the Years 1847-48* pp. 165.
 2. *Geological Survey of Canada: Report of Progress for the Years 1848-49* pp. 65.
 3. *Geological Survey of Canada: Report of Progress for the Years 1849-50* pp. 115.—By W. E. LOGAN, Esq., *Provincial Geologist*.

Having already, through the medium of this Journal, more than once drawn attention to the progress of the Geological Survey of the Province conducted by the eminent Geologist whose name is connected with the foregoing titles—with the aid of his two able assistants,—we once more accept the invitation to resume the same important though to many not very interesting subject. So long an interval, however, has elapsed, that it may be necessary to remind our readers that it is now 18 months since we were last induced, by particular circumstances, to devote considerable space to the review of a *detached* portion of Mr. Logan's then recent researches, confined to a *special* examination of that part of the mineral region, on the north shore of Lake Huron, in which the *Bruce Mines* are situated; and that we availed ourselves of that opportunity to set some of our “intuitively wise” Legislators right with regard to Mr. Logan's high professional character; but that we were otherwise disposed to defer entering fully upon the subject till the appearance of the general Report of the season. On that, however, taking place, we found it to embrace not only the Survey of the north shore and islands of Lake Superior, but protracted researches in Lower Canada, the completion of which was reserved for another year; and we were therefore once more induced to await the result. It is therefore to that Report, in particular, which we would now in the first in-

stances invite the attention of our readers, leaving the remaining two to be taken up in succession, as they happen to be found connected with each other. And it so happens that circumstances have occurred which may, in the course of our remarks, induce us to volunteer a somewhat similar act of justice to the well earned reputation of the gentleman who conducts the Chemical and Mineralogical Department of the Survey, as we on a former occasion felt due to its general Director.

Suffice it, then, for the present, to premise, with regard to the results of the three seasons under review,—that, during the Geological investigations of the first year, namely 1847-8, the labours of Mr. Murray were devoted to an examination of part of the shores of Lake Huron;* and those of Mr. Hunt to the chemical analysis of various minerals and mineral waters collected by himself on two different occasions—one up the Ottawa, and the other to the western extremity of Lake Ontario—besides that of various mineral substances obtained during the explorations of Messrs. Logan and Murray;* while Mr. Logan's own attention was engaged in an examination of the tract of country on the south side of the St. Lawrence, extending from the vicinity of Montreal and Lake Champlain to the River Chaudière, and in which he also availed himself of the temporary aid of Mr. Hunt: that during the second season, Mr. Murray continued his examination of various parts of the coast of Lake Huron, besides personally assisting Mr. Logan;* and Mr. Hunt, in addition to aid afforded to Mr. Logan, continued the analysis of various minerals and mineral ores existing in both sections

of the Province;† while Mr. Logan, besides being occupied three months on the north shore of Lake Huron, employed a portion of his time in company with Mr. Hunt, in the examination of certain *test facts* bearing on the physical structure of the Green Mountains of Vermont, in their prolongation into Canada, (as set forth in the previous Report,) as also in the vicinity of St. Francis, preparatory to continuing his investigations to the Temiscouata portage road: and that during the third season (i.e. 1849-50) Mr. Logan's attention was directed to the resumption of a careful examination of these formations, aided during the whole time by Mr. Murray, and during a part of it by Mr. Hunt, who (a description of the *soils* of the country being one of the objects contemplated by the Legislature) was further employed in collecting samples in different parts of both sections of the Province, for analyses during the winter.* In addition to which, Mr. Logan, having learnt that an application had been made to Parliament for the means of prosecuting researches for *coal*, by the expensive process of boring, in the vicinity of Bay St. Paul, where the discovery of supposed indications of that mineral had been proclaimed by some of the inhabitants, and that Government were desirous that the Geological character of that locality should be examined, took the opportunity of devoting two weeks to the investigation of the rocks in that particular neighbourhood, as also of those of Murray Bay, which presents features of a similar kind, so as to set the matter at rest.

To do justice to the important and valuable results of these wide spread, and, of necessity, unfortunately often isolated and disjointed investigations,

* See Report for 1847-8, p. 93 to 124.

* See Report for 1847-8, from 125 to 165.

* See Report for 1848-9, p. 7 to 46.

† See Report of 1848-9, p. 46 to 65.

* See Report for 1849-50, p. 73 to 108.

would require far greater space than could possibly be placed at our disposal. Our readers must, therefore, be content with a few random, imperfect notices and condensed extracts, of the principal important parts; and these we shall endeavour, without reference to dates, to confine to the geographical characteristics of the valley of the St. Lawrence on the one hand, and the north shores and islands of Lake Huron on the other, — the investigations setting at rest the supposed existence of coal, — the more promising examination of the "Canadian Gold Region" of the Chaudière, — the analyses of various minerals and mineral springs, &c.; and though last, not of least importance to an agricultural people, the analyses of various soils from different parts of both sections of the Province.

Giving precedence to the *geographical characteristics* of the valley of the St. Lawrence, we proceed to state in the words of the Report,*;

Between Montreal and Quebec the valley of the St. Lawrence has a general north-east course, and presents a flat surface on each bank of the river. On the north-west side this surface extends in breadth a distance varying from twelve to twenty miles, to the flank of a wide-spread, hilly, but not very elevated country, occupied by syenitic gneiss, interstratified with crystalline limestones, being a continuation of the metamorphic formation existing on the Ottawa. On the south-east side the plains exhibit a width of thirty to forty miles, and, with the intervention of a few moderate undulations in one or two places, reach the foot of a range of mountains which stand on a breadth of twenty-five to thirty miles. This range is the continuation of the Green Mountains of Vermont, which, after entering Canada, lose much of the bold character they possess farther south, though they still offer, in the district under description, two or three isolated peaks attaining the height of about 4000 feet

above the level of the sea. The opposite sides of the mountain belt run very nearly parallel to one another, and a valley, or continuous line of valleys, bounds it on the south-east side, with a gently-rolling surface by no means so even as the plains on the north-west, but presenting few extraordinary swells or abrupt protuberances. The breadth of this valley may be from fifteen to twenty miles; and to the south-east the land gradually rises into a more mountainous tract, extending to the Province line, which runs upon its ridge from the sources of the Connecticut River to those of the Chaudière.

These ranges of mountain and valley are parallel to one another and to the St. Lawrence, and the whole coincide with the strike of the formations constituting the district. The streams conveying the waters of the area to the great river, are first the Richelieu and the Yamaska, the main trunks of which run in a direct continuation of the valley of Lake Champlain; and next the St. Francis and the Chaudière, about eighty miles asunder, the lower part of each of which makes a straight section across the measures, including the rocks constituting the mountain range, while their upper parts drain the line of valleys beyond. The upper part of the St. Francis and its tributary, the Massawippi, flowing in opposite directions along the foot of the mountain range, occupy about eighty miles of the line in the general strike of the formations, and join at Lennoxville, after being supplied by several transverse tributaries, which take their sources in the southern mountains. — The Chaudière, springing in these mountains, overlaps the upper part of the St. Francis, flowing in an opposite course, and more southern but parallel line for some distance below Lake Megantic. It then turns up northward, and is joined by the Rivière du Loup, which flows across the measures in the same direction as the lower part of the Chaudière, and further on it meets another tributary called the Famine. This tributary is in the same relation to the rocks of the country as the upper part of the St. Francis and the Massawippi. Flowing in the strike, it takes its source to the eastward, in a level tract, which is also the source of the Mitaywaqnon and constitutes part of the valley of the

* See Report for 1847-8, p 6 et seq.

St. John River, to which this is tributary; and it appears probable that the valley of the St. John, presenting a continuation of the line of valleys, will be found to display the same relation to the stratification as that portion of the depression to the south-west already mentioned. Between the St. Francis and the Chaudière, are the Bécancour, and the east and west branches of the Nicolet. These take their rise towards the south-east side of the mountainous belt of country. The course of the two Nicolets is in general transverse to the measures, more directly so in those parts which flow among the mountains; that of the Bécancour is more irregular, being sometimes with and sometimes transverse to the strata for long stretches. The main source is about midway between the Chaudière and the St. Francis, but on leaving the hilly tract, the stream approaches to within twenty miles of the former, while its mouth is not much over the same distance below the latter.

These various tributaries of the St. Lawrence and their ramifications, by which the district is very abundantly watered, often spread out into small but beautiful lakes among the highlands, giving, in association with mountain peaks, great picturesqueness to the scenery. This is particularly the case towards the south-western parts, where these lakes so bespangle the country that in one panoramic view from the summit of Orford Mountain, estimated at 4050 feet above the St. Lawrence, no less than eighteen of them can be counted, emptying into the Yamaska and Richelieu on the one hand, and the St. Francis on the other. The largest of these is Lake Memphramagog, which has a length of about twenty-five miles, by a breadth generally under one mile, but sometimes reaching two; it lies partly among the mountains and partly in the valley beyond, which obliquely crosses the upper extremity, and in one place the lake approaches to within six miles of Stanstead Plains. Each branch of the Nicolet is supplied with its lake among the mountains, the western in the Township of Tingwick, the eastern in the Augmentation of Ham, the position of each having the same relation, the one as the other, to the rocks of the district. The Bécancour displays a very beautiful chain of

lakes in the Townships of Inverness, Halifax, and Ireland; while others, of a similar size, on the north-west line of Wolfestown, appear at the sources of the stream, situated similarly in geological regard as those of the Nicolets.—Several of these, with the addition of others, are taken in at one view from the summit of the White Mountain, a lofty peak near the division line between the Townships of Stuart and Nelson; but two of the most conspicuous the view comprehends, are Lake St. Francis and Aylmer, which, being expansions of the upper part of the St. Francis, are not among the mountains.

The plains on the north-west and the vale on the south-east of the mountain belt constitute two valuable tracts of country, of great agricultural capabilities. The soil of the former, though in some places light, is for the most part a strong calcareous clay, supporting, in its wild state, a predominating growth of soft wood, but when cleared, well suited to yield abundant crops of excellent wheat, for which the seigniorial farms along the St. Lawrence were celebrated before the practice of an inferior system of husbandry had caused exhaustion, and the Hessian fly had committed the devastating ravages which have almost wholly deprived the Lower Province of a wheat harvest for the last eight or nine years. The soil of the south-eastern vale is, with many exceptions, generally a gravelly loam, seldom deficient in calcareous quality, and often very ferruginous; its timber is chiefly hardwood. It is well adapted for wheat; but the distance of the district from a market has turned the attention of its cultivators almost exclusively to the rearing of cattle, and its produce in hay and grass is uncommonly abundant. The intermediate mountain country is possessed of many fertile subordinate valleys, some of which are of considerable breadth; many of the mountains are round-topped elevations of very moderate height, not deficient in soil: hill and dale are in a majority of cases clothed with hardwood, and when cleared have given some excellent farms.

The level surface of the plains on the north-west affords facilities for rail or plank roads in almost any direction, but the usual communications at present existing, though they give easy

travelling in summer in the dry weather, become at the melting of the snows in spring, and in the rainy season towards the end of autumn, impracticable strips of deep adhesive mud. Among the hills, and south of them, the roads, though more undulating, in general rest upon a good hard bottom, and when properly constructed in the first instance, and kept in moderate repair, are passable at all seasons. The number of them, however, is not great, and some, which have perhaps been ill-chosen lines, have, though originally made at great expense, been suffered to fall so far out of repair as to become wholly, or almost wholly, obliterated; many are as yet mere tracks through the bush, and it is only the main channels of communication that are moderately good roads. This renders the examination of the country extremely laborious, and in following the strata it oftentimes becomes requisite to traverse extensive tracts through the forest, where progress must necessarily be slow.

Although the larger part of the district has been surveyed and divided into Seigniories and Townships, perhaps nine-tenths of it yet remain unreclaimed from its original wild condition! The greatest extent of clearing is on the bank of the St. Lawrence, and the least in the central mountain belt, towards which improvement proceeds from the Seigniories on the one hand, while on the other it advances from the State of Vermont; and of this state the whole area under description, in surface, soil, rocks, and minerals, appears to be a modified repetition, with a difference chiefly in latitude.

The great length of the foregoing extract precludes our devoting more than a very limited space to a notice of *the sequence and distribution* of the geological formations of this region, and that chiefly confined to the vicinity of Montreal, that we may afford more to the various materials capable of advantageous economic application.— Suffice it then to state that the more solid rocks are so covered up on the plains by tertiary and alluvial clays, sands, and gravels, and still so much

concealed in most parts by primeval forests, that no one section examined across the formations is sufficient to show all the details, though it has served to ascertain the general masses to which attention is to be directed, and many of the subordinate materials holding economic value.

If a straight line be drawn from Montreal to Canaan on the Connecticut River in Vermont, and continued westerly from Montreal, it would strike the Rivière du Nord, in the Seigniorie of the Lake of Two Mountains, about north of St. Scholastique, and there come upon a formation of gneiss and crystalline limestone, the same as that extensively displayed in the valley of the Ottawa. Commencing with this formation as a base, the first rock found resting on it is a whitish quartzose sandstone, which skirts the hills found in the flat land on the north-east bank of the St. Lawrence; and above Montreal the same formation is found on both sides of the mouth of the Ottawa; while on the south side of the St. Lawrence, it crosses the County of Beauharnois, and enters the State of New York, and divides into two branches, one of which turns up the valley of the St. Lawrence and the other sweeps round into that of Lake Champlain.

The next formation which presents itself is a limestone, arenaceous at bottom, black and bituminous at top, and in the middle consisting of thick solid grey beds of excellent quality for building stone and for burning to quicklime, occupying about 30 miles, the summit of which approaches within a short distance of the St. Lawrence on the east side of the island of Montreal; and in an opposite direction crossing the St. Lawrence at St. Louis, sweeps round to St. Johns, and, running up the Richelieu River, finally enters the State of New York.

On the islands of Montreal and Jésus the thick grey beds of the middle limestone run in a circle from the vicinity of Lachine and Caughnawaga to that of Terrebonne, keeping close behind the Montreal mountain, and perhaps running under it in their range; and they are displayed in various quarries extensively worked in the rear of this city, some of which display a number of trap dykes of various thicknesses up to three feet, which run in several directions, and intersect one another as well as the limestone; and in some instances, the limestone having been removed from among them, the dykes, left standing up several feet above the bottom of the quarries, represent in a marked manner the various details of the cracks they once filled. This volcanic area extends over about 700 acres, and consists of several varieties of trap; that of the mountain summit, overlooking St. Catherines, being light grey in colour, from being composed of a preponderating quantity of white feldspar, with disseminated black hornblende, and that towards the town of a darker hue, from the hornblende becoming more abundant, while in the vicinity of the Cote des Neiges road it is augitic, forming black masses which, under the influence of the weather, disintegrate into a coarse, granular, but fruitful soil. A very important band of stratified trap also crosses the Papineau road about a mile and a half from the St. Lawrence, and has been followed on the strike of the limestone for five miles to the northward, but southwardly is lost beneath the tertiary sands and clay in less than half a mile.

The calcareous formation described is highly fossiliferous, and it corresponds in the lower part with the calciferous sandstone, in the upper with the Trenton limestone of New York; it is there succeeded by a fossiliferous

deposit of black bituminous shale, with the title of the Utica slates, and a similar deposit follows the Montreal limestone, on the line of section. This shale occupies a narrow strip on the east side of Montreal Island, and is exposed at Sault St. Louis, and several spots along the margin of the St. Lawrence to Point St. Charles, reaching back to the third lock of the Lachine Canal; further down the island it is concealed by tertiary and alluvial deposits, but it is seen at Longueuil on the opposite side of the river; it forms St. Paul Island, and it seems probable that the bed of the St. Lawrence is worn out of the formation for a considerable distance below Montreal.—From Sault St. Louis it follows the subjacent limestone round to St. Johns, and running up the east side of the Richelieu, with a width extending beyond Henrysville, it constitutes all that point on Lake Champlain lying between the exit of the lake and the Missisquoi Bay. Like the previous formation, it is cut by trap dykes, and interstratified with trap floors; instances of the former are seen on the Longueuil shore, opposite and below St. Helen's Island; and of the latter about a quarter of a mile forward from the Longueuil termination of the St. Lawrence and Atlantic Railroad, as well as at Point St. Charles, on St. Paul Island, and higher up the stream.

The country between the St. Lawrence and the Yamaska presents an even surface so covered by tertiary deposits that there are but few exposures of the older strata; but there appears some evidence of higher strata than those holding the fossils, in the space between the Yamaska, the Huron, and the Richelieu, round the mountains of Rougemont and Belœil,—which isolated mountains, as well as those of Montarville and Mount Johnson, appear to be composed of trap at the summit, resting on stratified rock at the base. Near Chambly there is an interstratified bed of trap of a trachytic character, being composed of a slightly reddish feldspar with dingy spots of crystals of feldspar disseminated in it. A somewhat simi-

lar porphyry occurs about half way on the Chambly Canal; and at St. Hyacinthe the strata are cut by a dark compact two feet greenstone dyke, with small disseminated crystals of feldspar giving it a porphyritic character.

Want of space precludes our attempting to refer in detail to various other stratifications and groups of rocks examined, in the course of Mr. Logan's researches in the Eastern Townships—such as dark coloured argillaceous shales, massive grey and black lime stone, several varieties of slate, trap, dolomite or magnesian limestone, serpentine, quartzose, chloritic, and other steatic rocks, noticed during one season; and the gneiss, sometimes of a granitic and sometimes of a syenitic character, white quartz rock, calciferous sandstones, and bituminous limestone, &c., observed in another, that we may have more room for noticing a few of the valuable and useful economic materials to be derived therefrom, comprehending magnetic and specular oxids of iron, bog-iron ore and iron ochre, chromic and titaniferous iron, wad or bog manganese, copper ore, gold, granite and other qualities of stone suited for building purposes, for mill-stones and for whet-stones; roofing slates, serpentine, soapstones, dolomite, common limestone, clay for bricks and common pottery, shell-marl, and phosphate of lime.

The *magnetic and specular iron oxids* are most abundant in the Townships of Sutton and Brome, and occur chiefly in the vicinity of dolomitic belts, occupying the two sides of a valley running from one township to the other. The *bog-iron* is obtained in Stanbridge and Simpson; the *ochre* in a marsh in a valley in Durham; and the *titaniferous ore* in St. Urbaine in the valley Gouffre.

The *oxyd of chromic iron*, extensively used as a colouring material in dyeing calico, in pottery, procelain, enamel, and in oil painting, is found in the Township of Bolton; and the *bog manganese or wad* is met with in three localities in Stanstead.

Copper pyrites and variegated copper had before been met with in several parts of this district, usually in the vicinity of the magnesian and whitish grey limestone of Upton, Acton, Wickham and Inverness; but excepting in three localities, where they occur in veins, bearing the character of a regular lode, hold out little prospect of a profitable result.

On the attractive subject of *gold* we feel justified in giving the following condensed particulars in Mr. Logan's own words:—*

It appears from the Reports of some of the State Geological Surveys of the American Union, from various papers which have come before the public in *Silliman's Journal of Science and Art*, and from the statements of Mr. James D. Dana and Professor Charles Upham Shepard in their works on Mineralogy, that the existence of gold in North America, occurring in more or less quantity in veins and alluvial deposits, has been traced at intervals, some of which are considerable, from Georgia, the Carolinas, Virginia and other Southern States, and even from Mexico to the Chaudière in Lower Canada. It is not improbable it may follow the run of one and the same geological formation through the whole distance, and will ultimately be traced to Gaspé.— Along the whole line it seems to be associated with or in the vicinity of rocks, strongly characterised by magnesia, such as dolomite, serpentine, talc and chlorite slates, and at the same time marked by the presence of chromic iron, titaniferous iron and rutile. It is found in similar association in other countries, and the description of the Ural Mountains, for which we are indebted to Sir R. I. Murchison, and his

* See Report of 1847-S, p. 73 to 80.

companions, shews that these characteristics are conspicuously displayed in that auriferous region of Russia, where the gold is accompanied also by platinum, which is stated in *Silliman's Journal* for September last, to have been observed very recently in one of the gold mines of North Carolina.

What has already been said of the rocks of the Eastern Townships is sufficient to exhibit that the general types above alluded to are legibly imprinted on the Canadian prolongation of the Green Mountains, and the geological analogy between the Canadian strata and those of the more Southern States is drawn still closer by the discovery of gold in the district under description, not only in alluvial deposit but also (in mere traces however) in a vein. . . .

The only locality of a vein, yet determined in the Eastern Townships is in the vicinity of Sherbrooke, where the metal is being found associated with the copper pyrites. . . . The quantity of the precious metal however appears to be insignificant. But it is to be remarked, that the gold in the matrix being invisible to the eye even assisted by a magnifying glass, the examination of the vein was not made with a knowledge of its presence, and it was only in assaying the copper obtained by smelting a washed sample of copper pyrites, resulting from 74 lbs. of the vein taken indiscriminately, that the existence of the gold was ascertained. According to this trial, 100 lbs. of the vein would yield $12\frac{1}{2}$ ounces of copper; 180 grains of which copper yielded 0.031 parts of a grain of gold. The 100 lbs. of the vein would thus give 1.03 grain of gold; and the value of the metal in a ton of the rock would be about \$1. The 180 grains of copper yielded also 0.162 parts of a grain of silver; so that 100 lbs. of the vein, in addition to the gold, contains 5.40 grains of silver.

It is unnecessary to mention that these results are valueless in an economic point of view, and no allusion to them would have been made beyond a passing notice in stating the produce of the copper, did not the presence of the precious metal in a vein come in aid to illustrate the general character of the region, and in particular an alluvial auriferous deposit, where the quantity may probably prove of more impor-

tance. This deposit is in the Seigniori of Rigaud-Vaudreuil, the property of the heirs of the late Charles Etienne Chaussegros de Léry, Esq. The spot is on a small stream called the Touffe des Pins, a tributary, falling in on the right bank of the Chaudière, about fifty-eight miles from Quebec. Mr. C. de Léry, one of the present proprietors, who six years ago exhibited to me specimens of gold he had obtained, has informed me that the first piece of the metal was discovered about thirteen years ago by a daughter of one of the *cestnaires*, and the fact coming to his knowledge, he himself made search, and found another piece in the bed of the stream. The discovery was communicated to the public, through *Silliman's Journal*, vol. 28, p. 112, in April, 1835, by Capt. F. H. Baddeley, of the Royal Engineers, whose zeal in Canadian geology is well known in the Province and elsewhere. The weight of the piece is stated in the *Journal* to have been 10.63 grains, but this was only a fragment separated from one of the pieces, the remainder of which now weighs 1056 grains. Subsequently to this, Mr. de Léry from time to time continued to meet with small lumps and grains, in and about the same spot in the channel of the brook, and up to the autumn of 1846, the value of the whole he had collected by hand, without any process whatever of washing, may have amounted to \$130. The largest three pieces have been weighed by Mr. Hunt, and their weights are 1068 grains, 1056 grains, and 744 grains. Since that period, a slight examination has been made of the deposit; and last season, previous to my visit to the locality, which was late in the autumn, the alluvium had been washed experimentally in small quantities in several places along the banks of the stream with more or less success. But owing to freshets and other circumstances, the amount of work done was insignificant. One washing (the only regular day's work) of sixty bushels, by means of a rocker, or species of shaking-table, in common use in the Southern States, produced 440 grains of gold, which would be equal to about $7\frac{1}{2}$ grains to a bushel, the weight of which bushel would be about 100 lbs. About 75 lbs. of gravel, washed in my presence by one of my own men, produced a quan-

tity equal to about 2 grains to a bushel. The metal however is so unequally distributed, and so little has been done, that it would be premature to consider the above an average return. I am informed by Mr. de Léry that it has been ascertained by the examination, that the deposit, in parts close upon the brook, presents indications of being auriferous for nearly two miles up the valley, which for that distance has a bearing to the north-east, coincident with the general strike of the stratification, and that in one place near the spot where the first discoveries were made a few particles of gold were found, on the south side of the valley, about fifty feet above the bed of the stream, and about 100 yards removed from it. He informs me, also, that a few particles were met with near the road, which is on the right bank of the Chaudière, on a small tributary brook, called the Ruisseau Lespard, also running with the stratification, about two miles below the Touffe des Pins, and one piece is reported to have been found higher up on the Chaudière, beyond the Seigniorie. The total quantity obtained from the first discovery up to the end of October last year, equals a value of about \$300.—In an assay of a small piece of the gold obtained from Mr. C. de Léry, Mr. Hunt finds it to contain 13.27 per cent. of silver, so that the fineness of the gold would be $20\frac{1}{2}$ 9-4 carats. . . .

The deposit occupies the centre of the valley in which it exists, which is deep and not very broad, and the amount of detritus varies considerably in different parts of its distribution, while the brook has cut down through it in many places, exposing the glossy-surfaced clay slate, and occasional quartzoe bands on which it rests. The detritus is a gravel or shingle, of which the pebbles are derived from the various rocks composing the country, at least as far north-westward across the strata as the band of serpentine described as traversing the Chaudière in the north-west part of the Seigniorie, the distance to which is six miles, and it is not improbable some of it may be derived from sources still farther in the same direction. One class of pebbles consists of talcose and chloritic slates, and glossy-surfaced clay slates; another, of the various qualities of the rocks which have been

described, as mixtures of corneous quartz and diallage, or hornblende, or feldspar; a third, of vein-stone quartz, and a fourth of serpentine. In the smaller parts of the gravel are found grains of chromic iron and crystals of rutile. The serpentine pebbles are often in a decomposed condition on the exterior, giving an adhesive, unctuous, and partially ferruginous clay. A clay of this description is occasionally seen among the pebbles in a thin layer not far removed above the slates, and in some places a deposit of peroxyd of iron or of manganese, coating the pebble and filling up the interstices among them, runs into thin horizontal patches. The pieces and particles of gold are almost all found towards the lower part of the deposit, and many are discovered in the clefts of the slate, where the plates have been loosened by external causes; but the extent to which the plates have been loosened is sometimes so small that it would scarcely be supposed that they had been separated at all, yet scales of the metal will be found between them. Some pieces are found in the unctuous clay, and among the iron and manganese-coated pebbles; and the gold itself, is sometimes partially covered with a closely-adhering film of the hydrated peroxyd of manganese. The pieces of gold are all more or less rounded, their original sharp angles and corners, resulting from the mode in which they lie in the vein, having been worn away by attrition. In some of the largest, however, small portions of the vein-stone quartz remain firmly adhering.

It is worthy of remark, that the positions of the gold-bearing vein of the vicinity of Sherbrooke and of the auriferous deposit of the Seigniorie of Rigaud-Vaudreuil, bear directly for one another in the general strike of the stratification of the intervening country, and that they stand at an equal distance from the outcrop of what is considered the base of the Famine and St. Francis fossiliferous limestone. The general character of the rocks of the two localities is not unlike; there appears to be less chlorite on the Chaudière, and more talcose clay slate, but there is little doubt they belong to the same formation.—The corneous rocks are much nearer the auriferous position on the Chaudière than on the St. Francis, but there is

between the Touffe de Pins and the Famine a band of the same peculiar dingy olive-green translucent serpentine mentioned in the general description as occurring on the line of section not very far from the Georgeville limestone, the place of which serpentine on the St. Francis would be between Sherbrooke and Lennoxville, standing there in the same relation to the auriferous vein, that it does to the deposit in the vicinity of the Chaudière. One or two small quartz veins run under the auriferous deposit of Rigaud-Vaudreuil, and it is not improbable that in these, or other quartz veins that may be near, the source of the gold will be found. Those displaying hydrated peroxid of iron should be especially examined.

To this may very properly be added, that in a valuable and interesting general "List of some of the economic minerals and deposits of Canada," appended to the Report of 1850,* Mr. Logan gives a list of not less than ten localities in which the precious metal has been found; and we understand that many more have been since added.

Among the other less attractive though valuable economical materials may be mentioned *fine granite* for building purposes found to an inexhaustible amount in various localities in Stanstead, Barnston, Bedford, Burford, and Hereford; and *trap*, met with in Brome and Shefford mountains, both of which are used for millstones in the Eastern Townships, and are found a very good substitute for the French Burr. *Slates* of a quality fit for roofing are found in the Townships of Kingsey, Halifax, and Brompton.

Marbles, black, brown, grey and mottled are met with in Phillipsburgh, Upton, Acton and Wickham, as well as near Montreal, and a variegated white and green kind in Grenville; and the extensive ranges of *serpentine*, particularly in Shipton, Melbourne, Stukely, and Orford, &c., &c., (in many

instances resembling the celebrated *verde antique*) would probably afford many varieties for ornamental architectural purposes.

Soapstone (a compact talc) which accompanies the serpentine and dolomite, and is applicable to the lining of ovens, furnaces and fire-places, as well as for slabs for flooring, is found in many localities, and there known by the name of freestone; and blood-red jasper is met with in a bed in Sherbrooke.

A few of the quarters, in which *common limestone* is abundantly displayed have been already mentioned, and need not be further adverted to here, the very names of the localities being sufficient to fill a column. Stones fit for *hones and whetstones*, are found abundantly in several places in the Eastern Townships; and the tertiary formations which spread over the flat country between the St. Lawrence and the Green Mountains afford an unlimited amount of *clay* for bricks and common pottery.

Of that valuable article for manure *shell marl*, three extensive deposits were met with in Phillipsburgh, Stanstead Plains, and the Seigniorie of St. Hyacinthe; in the latter of which it is covered by a layer of *prat*, another valuable, and of late, better appreciated substance, which might with advantage be mixed up with it for use, and which is to be met with in abundance in many other parts of the Province.

Phosphate of lime, another highly valuable substance, from which the bone-dust manure and the celebrated guano derive their singularly fertilizing quality, is also met with, associated with carbonate of lime, in veins ranging from eight inches to three feet, in the Bays St. Paul and Murray.

It will be perceived that in the above enumeration no mention is made of

*See Report for 1850, p. 109.

coal; and we now, therefore, proceed to advert to the investigations on that head, the results of which, we trust, will put an end to any further fruitless speculations as to the existence of that so much to be desired, but, as far as the geological structure of Canada warrants, altogether incompatible mineral.* On this subject, Mr. Logan, in his usual, characteristically wary and elaborate way, thus observes:—†

Among the economic materials of Bay St. Paul and Murray Bay, it is a matter of regret that *I have not in my power to include the coal reported to have been discovered there.* Upwards of two years since, the Commissioner of Crown Lands transferred to me a few specimens of this mineral, which had accompanied a petition from Messrs. Julien Bouchard and Abraham Ménard, of Bay St. Paul, to Your Excellency, representing that they had discovered such indications of its existence on their farms, as induced them to request an examination of the locality, by a competent person, at the expense of the Government. Knowing the general strike of the formations through the country, and being aware, from previous examination, as stated in previous reports, that a band of calcareous rock of the age of the Trenton limestone of New York, which is well ascertained to be far below the recognized carboniferous deposits of North America, carried its outcrop in a continuous line from Grenville on the Ottawa, to Beauport below Quebec, on the north side of the St. Lawrence; and that another formation (contemporaneous with the Hudson River group of New York,) superior to the Trenton limestone, but also far beneath the same carboniferous deposits, extended on the south side of the St. Lawrence, from Point Levi to Cape Rosier, it was but reasonable to infer that the calcareous rocks of Bay St. Paul, which have been mentioned in published geological papers by Capt. Baddeley and Capt. Bayfield, were of the Trenton era. The existence of

workable coal beds in them, so far below their ordinary position, would have been a new fact, not only in relation to the carboniferous eras of other continents, but to that of North America itself, while it would also have appeared strange that the Trenton limestone, which in Canada and the United States has been examined over thousands of miles without any trace of true coal, should show so novel and exceptional a feature at Bay St. Paul. The improbabilities of the case induced me to consider that it would not be expedient to anticipate the visit that would be made to the locality in its turn in the due course of examination.

The fact upon which the existence of coal was predicated, was that several persons worthy of credit, having visited certain springs of water on the farms of J. Bouchard and A. Monard, had extracted with their own hands, and seen others extract from the springs, pieces of coal of good quality, which were supposed to have been brought to the surface by the force of the water from some coal seam in the rock beneath. The discovery of such specimens in such a situation, in a country which had been settled for centuries, and in which pit coal had been long in use, would have attracted no attention whatever; their presence would have been attributed to some of the thousand accidents connected with the requirements and works of man, which might have brought them there; but in a district reclaimed from its original forest within a comparatively recent period, where the history of the fields in which the specimens were found was known to the present cultivators, from the time those fields were first cleared, it was not by them supposed probable that the presence of the fragments could be due to any forgotten accident. The specimens are pieces of excellent clean, hard, compact, brilliant, black, bituminous coal, bearing the undoubted evidence of stratification, and varying in size from one-eighth of an inch to one inch cube. After the locality had been inspected by me, two men were set to work to clear out a few yards of trench cut back from the spring, and to expose fresh ground on its bottom and sides, which they effected after a full day's labor. Some small fragments of coal were found in the ground that had been previously moved,

* It may be proper to note, that, geologically speaking, the rocks composing the basis of the valley of the St. Lawrence, are regarded as from 20,000 to 26,000 feet below the carboniferous series.

† See Report for 1850, p. 18 to 25.

but the most careful examination could detect none in the freshly exposed parts, either of the clay in the trench, or in the vegetable mould.

In short, after a most patient and elaborate examination of the particular spot pointed out, as well as of the rocks in the neighbourhood, Mr. Logan had no hesitation in coming to the conclusion, that *the specimens of coal from the Bay St. Paul had so thoroughly the aspect of such as might be derived from some of the coal fields of Great Britain, as to leave in his mind very little doubt of their origin!* And he thus concludes:—

The frequency of these singular coal bearing springs in the vicinity, elsewhere so unusual, and the scarcity of fine grains of the mineral in them, rather tend to strengthen the suspicion. The number of the springs attested by the respectable persons of Bay St. Paul, whose certificate accompanied J. Bouchard and A. Menard's petition, is three, but I have been informed that another was brought prominently forward some years ago, as affording the same indications of coal, but that the late Mr. Andrew Stuart of Quebec, and *Captain Bayfield, had ascertained beyond a doubt, that the spring had been packed by the proprietor of the land with a view to enhancing the value of his property! Probably this person may have packed his neighbors' springs at the same time, with a hope that, should others make search in consequence of his pretended discovery, their researches might disclose facts to confirm his own.*

Having thus brought our gleanings from the vast field of Mr. Logan's labours to a close, we perceive that we have so thoroughly exhausted the limits assigned to us that we are compelled to reserve our observations on the co-operative investigations of his assistants for a future occasion.

L.

PRACTICE OF MEDICINE.

Cases illustrative of effusion within the Arachnoid Cavity, as a cause of Sudden Death, after Scarlatina.—By AUSTIN FLINT, M. D.—The two following cases appear to the writer to exemplify the occurrence of effusion within the cavity of the arachnoid, as the cause of sudden death. In both cases this conclusion is based solely on the phenomena exhibited before death, there having been no post mortem examinations. They are reported not as containing evidence of arachnoid effusion, but as illustrations of the points involved in the diagnosis of that event, assuming as correct the principles deduced from observations communicated for the March number (1850) of this Journal. In connection with these cases the attention of the reader is invited to the article just referred to. The first of the subjoined cases was inadvertently omitted in preparing that article. The second case has fallen under observation at a subsequent date. As an occasional, and, in a certain sense, an accidental element in the progress of different diseases, proving the determining cause of a fatal termination, the occurrence of this lesion has, in the opinion of the writer, in several instances been apparent in cases that have been observed since that article was published; and, if the views of the writer on this subject be correct, every practitioner will have no difficulty in finding illustrations. The two cases now reported, however, appear to present the occurrence of the lesion isolated in a striking manner, from other obvious elements of disease, and to exemplify, in consequence, more vividly the circumstances involved in the diagnosis,

CASE 1.—June 15th, 1847, I was requested, at night, to visit a patient in consultation with Dr. J. Pride, of this city. I found, on arriving at the house, the patient, a young girl aged 18, unconscious, with tracheal rattle, cold extremities, and evidently in *articulo mortis*. *The pulse, however, had considerable volume* (the frequency is not recorded.) *The respiration was irregular and convulsive, several respirations preceding each other, followed by a long interval.* She lived about two hours after I first saw her. Dr. Pride

gave me the following history:—She has been in delicate health for some time. On the day but one preceding her death, she was attacked with Scarlatina. The disease appeared to be mild. There was moderate Pharyngitis, and the eruption was abundant, on the day and evening of her death. Dr. P. had visited her at ten o'clock on that evening, and found her sitting up. She reported pretty comfortable, and anticipated feeling much better the next day. Her pulse was considerably accelerated, enumerating 120. There existed much pruritus of the skin. Dr. P. prescribed a few grains of Dover's powder. At eleven o'clock, her mother, who had not retired, observing that shortly after conversing she became unconscious, with the eye-balls upturned, became greatly alarmed, and sent in haste for Dr. P., who resided but a few rods distant. On the arrival of Dr. P., he found her awake declaring she was comfortable and expressing surprise that her friends were alarmed. She was not sensible of any unpleasant change in the symptoms. Dr. P. remained to observe the patient for a time. After talking jocosely for a few minutes, ridiculing the fears of her mother, she dropped asleep, and Dr. P. noticed that her respiration became heavy and stertorous. He was told, however, that this was not unusual. She awoke several times spontaneously, and remarked herself on her audible breathing. At length Dr. P. observed a slight convulsive tremor, and rolling of the eye balls. He immediately attempted to arouse her, and with partial success; but she speedily lapsed into a state of complete insensibility. *The respiration now became irregular and rattling as it was when I saw her, which was about half an hour after the development of the coma. Deglutition was impossible.* Dr. P. had resorted to the application of sheets dipped in hot water, and sinapisms, but with no benefit.

CASE 2.—A child of Mr. D. S. R., between 4 and 5 years of age, had mild scarlatina, in June, 1850. It was accompanied by a moderate pharyngitis, and considerable enlargement of the submaxillary glands. The child convalesced in a few days so as to be about the house, the submaxillary glands, however, remaining swelled, and my visits were discontinued. Subsequently I was

called to prescribe for the enlarged glands, and I directed the iod. potassii. The child continued pretty well, appetite good, was out of doors, and, owing to the feeble health of the mother, did not, perhaps, receive that degree of care, as regards exposure, etc., which otherwise would have been bestowed.

On the 7th July, the father informed me, at a casual meeting in the street, that the limbs, abdomen, and face of the child appeared bloated. Suspecting that the renal function might be at fault, I requested him to bring me a vial of the urine, which he did on the following morning. On testing the specimen with nitric acid, a copious deposit of albumen was thrown down. At the evening of the same day I was requested to visit the child. He continued to be up and about, playing out of doors; had been bright during the day, and had accompanied his parents in the afternoon, in taking a ride. The abdomen and limbs were enlarged, but the latter did not pit on pressure. The face also seemed swelled. *The respiration, since evening, had become much accelerated and was now very rapid, panting.* I thought effusion into the chest might have taken place, but, on percussion, no physical evidence appeared of this as the cause of the disordered respiration. *The child did not appear to suffer from dyspnoea, although he was extremely restless.* His muscular strength was not prostrated, being able to sit up. The pulse was much accelerated, and tolerably developed. I directed a warm half bath, and a solution of the sulphate of magnesia in hourly doses, until free cathartic operation. I am free to state that I did not anticipate the sequel. The deglutition was not impaired.

In about an hour afterward, I was summoned in haste, and on my arrival at the house, I found the patient dead.

The disordered respiration had continued unabated, but not increased, until a few minutes before the messenger was despatched, when it suddenly became extreme, and death took place in less than half an hour after this change occurred. To use the father's expression, the child seemed to "choke to death." *A neighbour informed me, of her own accord, without any questions, that she felt the heart beat at the precordial region, after the respiration had ceased.*

Remarks.—I have italicised, in the foregoing histories, the passages which relates to points of special importance in the diagnosis. These points are disordered respiration, evacuating in apnœa, the action of the heart in the first case, persisting and well developed after the patient was evidently moribund; and, in the second case, continuing after the cessation of the function of respiration. The circumstances upon which the diagnosis is based in these two cases, then, are as follows:

In the first case, coma suddenly and unexpectedly developed, not preceded by any aberration of the intellect, nor by any cerebral symptoms, but for a short period by heavy and stertorous respiration during sleep; death by apnœa, the deglutition affected simultaneously with the fatal disorder of the respiration. This group of circumstances, as it seems to the writer, denotes that the morbid agency which proved the immediate cause of death was, in the first place, cerebral, and, in the second place, produced its fatal consequences by suspending the functions of the medulla oblongata—that portion of the cerebro-spinal centre which sustains direct relation with the movements of respiration and deglutition. The same group of phenomena has been shown to be produced by hæmorrhagic effusion into the arachnoid cavity, (see No. of Journal for March, 1850, for cases.) Effusion of serum into the same cavity, it would be fairly inferred by analogy would produce the same phenomena, and be followed by the same result. But the presence of serous effusion in this cavity has been proved to exist in cases in which sudden death, under similar circumstance, has taken place. (See *ibid.*)

In the second case, notably disordered respiration, suddenly developed, without coma, and deglutition preserved; the disorder of respiration suddenly increased, producing apnœa and sudden death, the impulse of the heart persisting after the cessation of respiration. An analysis of this collection of phenomena, as in the first case, leads us to the medulla oblongata as the source of the fatal apnœa.

It is to be observed, in this case, that the embarrassment in respiration, although great, was unattended by dyspnœa, or a painful consciousness of a defective performance of this function.

This is a distinctive feature of disordered respiration, tending to apnœa, proceeding from compression of the medulla oblongata. The sense of the want of respiration (*besoin de respirer*) is impaired, in proportion to the diminished motive acts for carrying on the function—hence, the absence of that extreme distress attending defective hæmotosis from affections of the lungs or heart. This is a diagnostic point to be borne in mind.

In the last case, the existence of albuminaria, accompanied by accumulation of serum in the abdomen and cellular tissues, favors the supposition of serous effusion into the arachnoid.

In both cases the fatal affection might with propriety be nosologically included under the term apoplexy; and, if the pathology of the writer be correct, they are probably instances of serous apoplexy.

The cases are interesting from the fact of the sudden death occurring in connection with scarlatina.

They are reported, with the foregoing remarks, of necessity hastily penned, with a view to solicit the attention of pathological observers to the subject of serous effusion within the arachnoid cavity as a cause of sudden death, and as a mode in which a fatal termination occurs in various diseases.—*Buffalo Med. Jour.* Nov. 18th, 1850.

Treatment of Rubecola by Inunction.
—By JOHN EVANS, M. D., Prof. of Obstetrics, &c., in Rush Medical College, etc., etc.

June 1, 1850.—Miss F, aged 15 years, was laboring under the symptoms that characterize a violent attack of measles. The febrile action was strong—pain in the extremities, loins and head, severe—the eyes were injected, suffused, and intolerant of light—distressing nausea was constant, and the characteristic eruption was well marked upon the face, neck and breast.

I gave Dovers powders grs. viij. every six hours with free use of warm teas.

Finding no abatement of the distressing symptoms the next morning, I determined to use inunction, and, as practiced by Dr. Schneeman in Scarlatina, directed the patient to be rubbed with a piece of fat bacon over the entire cutaneous surface.

The relief was marked by the subsidence of all the distressing symptoms in a few hours, and the application was repeated twice the next day. No other treatment was applied except the free use of warm teas. The recovery was more rapid than I had before seen in such cases, and without any disagreeable sequel.

Two other members of the same family were treated by the inunction with the same favorable result.

I have since used the plan of treatment in a number of cases and with uniform and prompt relief.—*North Western Journal.*

On the Entrance of Air by the Open Mouths of the Uterine Veins considered as a Cause of Danger and Death after Parturition.—Dr. Cormack read an elaborate paper illustrated by experiments and cases.—The paper consisted of three parts:—The various effects caused by the entrance of air into the veins, and the appearances found on dissection. 2. Statement of facts proving that the entrance of air by the open mouths of the uterine veins may cause dangerous symptoms, and even death. 3. Suggestions as to the prevention and treatment of such accidents after parturition; with remarks upon the precautions required in injecting the uterus after delivery for uterine hæmorrhage. The opinion, that the entrance of air into the uterine veins might be a source of danger and death after parturition, had been enunciated by Legallois in 1829, and subsequently by Ollivier; it had likewise been supported by Dr. Cormack in his "Graduation Thesis," published at Edinburgh in 1837. Dr. Cormack had attended cases in which air had been drawn into the womb after delivery by the sudden relaxation of the organ, and occurrences of this kind he supposed must be frequent. Dr. Cormack quoted Dr. Meigs' very graphic description of the way in which air was often drawn in and then expelled with noise by the womb after delivery. Dr. Cormack wished to prove that if any impediment existed to prevent the exit of the air which had been drawn in, it must, when the uterus acted, be thrown into the large orifices of the uterine veins, provided they were not secured by coagula or by the apposition of their parietes from contraction of the

organ. He also showed, by anatomical facts, and by referring to the experiments made by Dance, that the communication between the cavity of the womb and the current of blood in the vena cava inferior was direct and easy, and that air once introduced into the uterine veins must soon be carried to the right auricle of the heart; there—if in sufficient quantity—to cause frothing of blood, aeriform distension of the right side of the heart, obstruction of the pulmonary artery, and congestion of the pulmonary capillaries. Cases of this kind had actually taken place. One had been published by Lionet, and another by Wintrich. A case had also been published by Dr. Bessems, in which air had been thrown accidentally into the uterine veins when injecting the uterus to arrest hæmorrhage. The woman died suddenly with symptoms of suffocation, and the right side of the heart was found distended by air. Dr. Cormack showed, by a detail of experiments which he had performed, and also by cases, that the entrance of air into the veins, even in considerable quantity, was not necessarily fatal. A case communicated by Sir B. C. Brodie to Dr. Cormack illustrated this fact. The general treatment for uterine hæmorrhage, by inducing contraction of the uterus, also the plugging, would be the means by which the entrance of air into the uterine veins would be prevented. Should the accident occur, and the circulation and respiration become affected, and asphyxia be imminent, it would be necessary to unload the heart and pulmonary capillaries, by taking blood, following up the advantage so gained by aspiration of the face with cold water, the application of stimulating embrocations, sinapisms, &c., and the internal use of various stimuli. Dr. Cormack stated that in a case which he had watched for hours after the accidental entrance of a large quantity of air into one of the veins of the neck, no advantage was got from stimuli till the heart was somewhat relieved by venesection. This is the case which occurred at Barnes in 1848, and an account of the inquest on which appeared at the time in the *Lancet*. In some cases, little or no treatment might be required. If the air was in small quantity, it would be absorbed, if the patient survived a sufficient time, and no bad consequences might ensue. At the same time, in

some animals experimented on, Dr. Cormack found that though they recovered from the immediate danger, they ultimately died from pneumo^lia. The case mentioned by Dr. Simpson, in a communication to the late Dr. John Read, and published in his collected *Memoirs*, were examined, and stated to belong to a different class from those of Bessems, Lionet, and Wintrich.

Letters were read from Dr. Collins, of Dublin, and from Dr. Lever, of London, to Dr. Cormack. The former knew of no cases of death from air entering the uterine veins: the latter had seen three.

In the discussion which followed, several fellows took part.—*Med. Sur. Jour.*

MIDWIFERY.

*Case of Presentation of the back at the full period of Gestation.—By W. B. Kesteven, M. R. C. S.—*Presentations of back or loins are forms of preternatural labour so rarely met with, that the following case seems worth recording:—Mrs. D—, aged about 30, at the expiration of the full period of her fifth pregnancy, was taken in labour at 5 A. M. on May 28th, 1850. I saw her between 6 and 7 o'clock; the os uteri was fully dilated, the pains strong, and occurring regularly. The membranes were entire. I could not then reach the presentation sufficiently to form an exact opinion of its nature. The pains continued regular and strong. At 11 A. M. I could detect a broad flat surface about the brim, which clearly was neither head nor breech. The mother was becoming much fatigued, and no further progress made in the descent of the child, still above the brim of the pelvis. The membranes gave way at 1 P. M. I could then bring my finger in contact with a greater surface of the presentation: I felt what I supposed to be a shoulder, and considered that the occiput was resting on the pubis. I then considered it to be my duty to turn, without waiting for assistance, as the pains had been strong for between seven and eight hours, and the patient's strength was becoming exhausted, and there appeared no chance of the position of the child being changed by the natural action of the uterus. On passing my hand into the uterus. I found

that what I had supposed to be the shoulders was the crest of the ileum; and that my hand, in passing to the fundus of the uterus, traversed the length of the back, and came in contact with the vertex, situated posteriorly in the fundus of the uterus. I then passed my hand (the right hand) over the body of the fœtus anteriorly, and, fixing my forefinger in the groin, brought down one leg into the vagina; at the same time pressing the body of the child upwards into the cavity of the uterus, and delivered footling, bringing down one extremity only.

The child was apparently still-born, but the means employed for its resuscitation were successful after having been perseveringly employed for an hour.

The mother had a speedy and perfect recovery. It may be remarked, that in her preceding labour I had been obliged to have recourse to the use of the forceps for the delivery of this patient, owing to an arm having passed into the vagina with the head.

REMARKS.—The rarity of this form of preternatural labour is shown by the following notices, collected from numerous obstetric authors:—

Dr. Merriman, in his treatise on "Difficult Parturition," states—"In the very extensive practice of my uncle, the late Dr. Merriman, and in my own practice, amounting together to nearly 20,000 labours, no instance has occurred of either of these presentations, except in one or two cases where the mother had not completed her seventh month of utero-gestation, and in these the children passed double through the pelvis." Dr. Merriman, however, relates one case which was communicated to him by a practitioner in the country, and states that he was informed by another friend that he had twice met with the presentation of the back.

The advice given by Dr. Merriman, on theoretical grounds, for the management of this case, is precisely such as it was found practically necessary to follow in the case that has been now related. "Should such an unusual case occur," observes that author, "it is possible that in the course of the labour the presentation would be changed to one more favourable. If no alteration in the position took place spontaneously, the introduction of the hand would be neces-

sary as soon as the parts were sufficiently dilated, to bring down the feet, and to deliver before the strength of the patient was exhausted." p. 96.

Dr. Collins, in his "Practical Treatise on Midwifery," does not mention this presentation. It is surprising that, in such a vast mass of personal experience as therein recorded, a similar case should not have occurred.

Neither, in Dr. Robert Lee's "Lectures on the Theory and Practice of Midwifery," nor in the same author's "Clinical Midwifery," which contains the histories of 545 cases of difficult, preternatural, and complicated labour, do I find any case of presentation of the back or loins recorded; and Dr. Lee has informed me that he has never met with an undoubted case of back presentation in his large experience.

Dr. Churchill places this presentation in his second division, but does not speak of having met with a case of the kind. Dr. Ramsbotham says it *may* occur, but is very uncommon. Dr. Blundell mentions only its possibility. Dr. Burns regards it merely as a stage of breech presentation that would terminate in that manner if left to nature. The narrative of the above case proves that such is not necessarily the course of this position. Although averse to meddling midwifery, and having almost unlimited faith in the powers of nature, yet I conceive that I should not have done my duty to my patient, had I left her to wait until nature changed the position of the child.

I am indebted to my friend, Dr. Allen, of Islington, for the opportunity, in his extensive library of obstetric works, of examining numerous French authors, and have found mention of back presentations, in several. Thus Madame de Boivin* describes four positions of dorsal presentations:—1. The head placed anteriorly above the pubis, the back posteriorly; the left side of the infant corresponding to the right side of the mother: the nates and feet being in the fundus uteri. 2. The head placed posteriorly, the pelvis anteriorly; the right side of the child corresponding to the right side of the mother. 3. The head to the right side. 4. The head to the left side. The directions given by

Madame de Boivin for the management of these cases are most minute, but appear more theoretical than experimental. Madame de Boivin mentions its occurrence six times in upwards of twenty thousand cases in her practice and at the Maternité.

Velpeau likewise refines on the management of this form of preternatural labour, and also gives an engraving thereof, but does not state that the case had occurred to him.

Holloway, July, 1850.

SURGERY.

Bubo Perforating the Abdomen.—P. E., ætat 22, a Scotchman, machinist, was admitted into the New York Hospital, under Dr. Post, with a suppurating bubo in the left groin, which discharged an ill-conditioned pus profusely from a spontaneous opening.—The bubo first appeared three weeks ago, since which time the patient has been working at his laborious occupation, which requires him to sit, and in which a violent strain is brought upon the abdominal muscles; he has had no treatment. The seat of the bubo is above Poupert's ligaments, but much nearer the anterior superior spine of the ilium than usual; in fact, the undermining of the integument extends beyond this point. There is no undermining of integument below the opening, but the depth is greater here than at any other point, and there is a circumscribed livid discolouration of the surface, the latter being of a florid healthy colour elsewhere. (This was observed subsequently.) Five months ago patient had chancre, followed by a bubo, situated an inch or two below the present, where there is now the cicatrix of the opening which was made to give exit to the matter; has had no chancre since, and no purulent discharge from the urethra; of tolerably steady habits; general health fair. Ordered cataplasm; low diet.

June 1st. The discharge continues very profuse, but its character has improved; all inflammation has subsided; patient was brought under the influence of sulphuric ether, and the unhealthy undermined integument pared off with a scissors, so as to expose the surface of

* Memorial de l'Art des Accouchemens.

the ulcer, and allow of proper dressings. Ordered applications of cold water.

5th. The ulcer is now discharging pus from the cut edges; the surface looks healthy, except at the above mentioned point. Ordered to apply the ungt. peruv. to the surface; continue the cold water.

6th. Discharge less profuse.

8th. Patient continued to do well until ten o'clock last evening, when according to the statement of the nurse (who neglected to inform me of it until the morning,) he was attacked with profuse and frequent discharges from the stomach and rectum; a large mustard poultice was applied by the nurse to the epigastrium and abdomen, which afforded some relief, but the vomiting and purging still continued. At nine o'clock this morning found patient very much prostrated, countenance sunken and livid; skin rather cool; pulse so rapid as scarcely to admit of numbering, and very small; mind clear; no pain on pressure on the abdomen or epigastrium; only complains of slight pain when he is about to have a discharge from his bowels. Ordered an enema of tr. opii. ʒij. mucil. g.a. ʒij. and to take R Cal. gr. x. opii gr. i. M. Ice sinapism to epigastrium, and haust. efferves. internally, to quiet the irritability of the stomach. Six p.m. Patient has been very comfortable since morning; has neither vomited nor purged; has slept none; is now lying on his back reading a newspaper. Complains now, for the first time, of some pain on pressure over the lower part of the abdomen, in the neighbourhood of the pubis; a reddish livid discolouration of either cheek is observed; pulse has scarcely improved; will not allow the bed clothes to remain upon him; skin pleasantly warm. Ordered camphor cataplasms to abdomen.—Twelve p.m. The irritability of the stomach has returned, the tenderness on pressure has also increased somewhat; pulse more feeble. Ordered porter with lime-water, also R Haust. efferves. ʒviij; acid hydrocy. m. x. M.; ʒss. q. l h. emp. vesic. to epigastrium, in connexion with other remedies.

9th. Seven a.m. Patient had three passages from the bowels last night, and an enema of tr. opii. ʒi was ordered. The vomiting continues unchecked; the blister has produced no vesication.—Ordered a dozen leeches to the epigas-

trium and abdomen, to be followed by warm fomentations. The pulse is more frequent and feeble; stimulants of various kinds, in small quantities, have been administered, both by the mouth and rectum, but they are now all ejected; can retain nothing but ice on the stomach; the abdominal tenderness has increased, but still is not urgent. Patient died at seven o'clock this evening.

Autopsy, sixteen hours after death.

—An examination was only allowed of the abdomen. Before making an incision, examined the bubo with a probe, which passed into the cavity of the abdomen its whole length without difficulty. Upon laying open the latter, a quantity of serum, rendered turbid by lymph, gushed out, and the intestines throughout were seen to be glued together by recent exudation of lymph, and the vessels of the peritoneum generally injected. Upon tracing the intestine along towards the bubo, the large bowel, just before it gives place to the sigmoid flexure, was found firmly glued to the internal wall of the abdomen, at a point corresponding to the situation of the bubo, by fibrinous bands, to the extent of an inch or more; these were evidently the product of recent inflammation, but admitted of considerable traction without giving way. The intestine was now slit open, and the ulceration found not to have communicated with it; the opening into the peritoneal cavity was found to be near the left sacro-iliac synchondrosis, close to the bifurcation of the common iliac artery, and was about one-third of an inch in diameter, being of a circular form; pus was seen oozing from it into the peritoneal cavity. Other abdominal organs, except those mentioned, were found to be healthy.

Remarks.—This is probably the only case of perforation of the abdomen by a bubo on record; and this fact prevented a suspicion of the actual state of the case until after death, and also an ante-mortem examination with the probe, which would have revealed the origin of the obstinate symptoms above enumerated. An attempt was made by nature in this case, such as she often makes in similar difficulties, to avert a fatal issue by causing the opening to take place into the cavity of the large-intestine instead of into that of the peritoneum; for this purpose, the former was glued to

the latter at the point where the communication should have taken place, but unfortunately the matter took a longer course, and opened beyond the adhesion.—*New York Jour. of M.d.*

MATERIA MEDICA.

Schænbein's Researches on Ozone.—M. Becquerel has laid before the Academy of Sciences, Paris, the following experiments and observations on ozone which have been communicated to him by Dr. Schænbein:—

A supply of ozonized air may be produced by placing in a globular glass vessel of from ten to fifteen pints capacity, and accurately closed, a small quantity of water which about half covers some pieces of phosphorus about a centimetre (= .393 Eng. inches) in diameter. After some time, the glass vessel is to be inverted in a tub of water, so as to withdraw the pieces of phosphorus, and the ozonized air is to be agitated with water, in order to wash it thoroughly: the neck of the globe is then to be stopped with a cork which shall admit of the passage of two tubes, one to permit the admission of water, the other to allow of the exit of the ozonized air.

Under the preceding conditions, ozone is formed by the contact of the vapour of phosphorus with oxygen and aqueous vapour. It is not formed at the same temperature in dry oxygen, nor in moist pure oxygen at the ordinary pressure of the atmosphere; but its formation takes place under diminished pressure, or when the temperature is raised to 70 ° Fahr.

The presence of certain other gases, as hydrogen, nitrogen, or carbonic acid, has the same effect as the elevation of temperature, or the diminution of pressure.

Ozone is not formed in moist air at the freezing point, but takes place rapidly at an elevation of six or eight degrees.

Increased density of the air is opposed to the production of ozone, as also are certain gases, as olefiant gas, nitrous vapour.

When ether vapour is slowly burnt in air or in oxygen, among other products a compound of ozone and olefiant gas is formed.

By passing ozone through a tube hea-

ted to about 600 ° Fahr., it is completely destroyed.

Ozone is insoluble in water: it is destructive to the life of small animals when these are placed in an atmosphere strongly charged therewith: it destroys colors, also ligneous and albuminous matters: it combines chemically with chlorine, bromine, and iodine, in the presence of water, forming acids. Atmospheric air charged with ozone and exposed over lime-water forms nitrate of lime.

Ozone in the nascent state, in contact with water, nitrogen, and a strong base, generally produces nitrate of the base. A small portion of nitric acid is produced by the slow combustion of phosphorus in atmospheric air.

Ozone acts powerfully on most metals, causing them to pass into the highest degrees of oxidation: it combines directly with olefiant gas without decomposition: it destroys sulphuretted hydrogen, selenuretted hydrogen, &c., and changes nitrous and sulphurous acids into nitric and sulphuric.

Ozone precipitates oxides of lead from alkaline solutions, or from acetate of lead; it rapidly decomposes salts of protoxide of manganese, whether solid or in solution, producing peroxides: whence it results that a strip of paper impregnated with sulphate or chloride of manganese serves as a reagent for the detection of ozone, by its becoming rapidly changed to a brown color. The same occurs to starched paper moistened with iodide of potassium.

A solution of yellow ferrocyanuret of potassium is changed by ozone into the red cyanuret.

Ozone, according to Schænbein, is the most powerful oxydizing agent in nature: it is produced in the air by electrical changes, most abundantly in winter, especially during a fall of snow.—*Comptes Rendus*, 1850.

Power of Lupulin in allaying irritation of the Genital Organs. By G. J. ZEIGLER, M.D., of Philadelphia.—Being obliged to resort to a prolonged use of tonics, I took the combination of iron, sulphate of quinia, and lupulin. After some time had elapsed, I believed that the indication for which I took lupulin was fulfilled. I therefore omit-

ted it, still continuing the use of the iron and the quinia, half a grain of the latter three times a day. In a few days, I began to experience symptoms of irritation of the bladder and urethra, with pain at the extremity of the penis and frequent desire for micturition, some what similar to those resulting from calculus. These symptoms increased, and in two or three weeks became so violent and constant as to give me no peace. The thought then occurred that they might result from something I was taking, and my mind reverted to the possibility of their proceeding from the quinia. This idea was confirmed by the opinion of a medical friend. As the symptoms did not appear during the use of the combination of lupulin with the other remedies, we concluded that it would be better to recombine them. This was done, and with the happiest effect. The feelings of distress begun immediately to subside, and in a few weeks entirely disappeared; and although I have continued the use of the above mentioned remedies for months since, I have had no further symptoms of the kind.

Thus, my own experience confirms the favorable opinion expressed by Dr. Page of the effects of lupulin in quieting the excitement of the genital organs, and induces me to suggest its combinations with the other remedies which generally produce irritation of these organs, and likewise for the prevention of strangury from cantharides, &c. Indeed I would recommend its employment in all irritating and inflammatory affections of the urinary and genital organs; those from calculi, polypi, uterine and vaginal irritations, &c, particularly.

The fact that I have not seen in any of the works on *materia inedica* and therapeutics any notice of such effects resulting from the use of sulphate of quinia, will, I hope, be considered sufficient excuse for this brief notice.—*Amer. Jour. of Med. Science.*

Artificial Cod Liver Oil.—M. Perroux, Chief Pharmaciaen of the Venerable Hospital of Paris, recently addressed a paper to the Academy of Medicine, wherein he proposes to manufacture an animal oil, into which certain proportions of iodine shall be introduced. He maintains that cod liver oil acts very

imperfectly, from the uncertain quantity of iodine it contains, and thinks that the oil which he proposes would be greatly superior.—*Dub. Med. Press.*

On the Composition of Wine and other Alcoholic Liquors.—By Mr. F. L. WINCKLER.—In order to discover the reciprocal chemical relations of grape-wine, apple-wine (cider), and Madeira-wine, Winckler made several experiments, the results of which are the following:—

I. GRAPE-WINE.—This wine had been kept in the cellar for two years; was perfectly clear, and of a pale wine color. In addition to the usual qualities of grape-wine, it had a specific gravity of 1.0043.

(1.) Alcohol.—On being mixed with double its volume of alcohol the mixture became cloudy, and in twenty-four hours a thin crystalline of bitartrate of potash, containing some lime, was deposited. The supernatant liquid was clear and nearly colorless.

(2.) Lime-Water.—Upon the addition of three volumes of lime-water, the wine immediately became darker, the mixture became cloudy, and, after a very short time yielded an inconsiderable but very voluminous flocculent brownish-yellow precipitate.

(3.) Chloride of iron colored the wine pale grass-green, but no precipitation took place.

(4.) Acetate of Potash was at first without effect, but after some time a small quantity of bitartrate of potash was precipitated.

The solid constituents of this wine, after evaporation, consisted of 2.45 per cent, of a dark yellowish-brown matter containing free tartaric acid.

The alcohol obtained from this wine by distillation and rectification over a small quantity of potashes, amounted to 5.5 per cent. (alcohol 46 per cent. by weight), and possessed a strong smell of cyanthic ether. The residue of the rectification yielded six grains of acetate of potash. In the residue after the first distillation, free tartaric acid, beside bitartrate of potash containing lime, was found.

II. CIDER.—Two years old, perfectly pure, and of the best quality. It was of a very deep yellow color, very slightly mucilaginous, taste and smell purely of

fruit, not vinous and little spirituous. It covered the litmus paper as intensely as the above described grape-wine. Specific gravity 1.309

(1.) Alcohol.—One volume of wine with two of alcohol gave a cloudy white mixture, which in twenty-four hours yielded an abundant white flaky precipitate, which was analogous to vegetable mucus.

(2.) Lime-water in excess produced instantaneously a light brownish-red color; in twenty-four hours an inconsiderable, very voluminous, light reddish-brown flocculent precipitate was formed.

(3.) Chloride of iron produced immediately a deep greenish-brown color; in twenty-four hours a considerable quantity of a dirty greenish-brown powder had fallen down.

(4.) Oxalate of ammonia was directly followed by the precipitation of oxalate of lime.

The solid constituents when perfectly dry amounted to 2.2 per cent., and could be re-dissolved in water, of a light greyish-brown color, inclining to violet, the water acquiring at the same time a strong acid reaction and fruity smell. This solution soon became mucilaginous. The proportion of alcohol obtained by distillation and rectification over carbonate of potash, was 2.7 per cent. of the cider. It smelt exactly like fresh apples, and the residue contained a small proportion acetic acid, in which butyric acid and formic acid could be detected by the smell.

From the evaporated residue of the first distillations, acetate of lime was obtained by recrystallization. The free acid which remained in the mother-liquor was lactic acid. On repeating the experiment with a larger quantity of another cider, the author obtained so great a quantity of lactic acid that further examinations could be instituted and its presence proved beyond doubt. The cider contained no bitartrate of potash, but lactate of lime and free lactic acid. In order to obtain the lactic acid in a pure state, Winckler recommends the liquid to be digested with oxide of lead, and the lead salt to be decomposed by sulphuretted hydrogen.

The distinguishing characteristics of grape-wine and cyder are, therefore, the presence of bitartrate of potash and ceanothic ether in the grape-wine, and a greater proportion of at least five per

cent. of alcohol, but a less proportion of tannin than in cider. The latter, on the contrary, contains lactate of lime and lactic acid, vegetable mucus, and a considerably greater proportion of tannin, which colors the iron green. On the average, also, a smaller quantity of alcohol, which even in the best pure cider does not exceed 35 to 4 per cent. by weight. The peculiar smell of cider is perhaps to be ascribed to the butyric ether. Mixtures of grape-wine with cider can be easily detected by the presence of bitartrate of potash and lactate of lime with free lactic acid.

III. MADEIRA-WINE.—Light brownish-yellow, of a well known taste; strongly reddens litmus. Specific gravity 0.99175.

(1.) Alcohol.—Mixed with double its volume of alcohol, the wine became cloudy, and after some time a few crystals of bitartrate of potash appeared.

(2.) Lime-water in excess produced instantaneously light brownish-yellow turbidness; after twenty-four hours an inconsiderable, very voluminous precipitate of the same color had formed:

(3.) Chloride of iron caused a light brownish-green color without precipitate.

(4.) Acetate of potash was followed after some time by the formation of a very small quantity bitartrate of potash.

(5.) Neutral tartrate of potash threw down after a short time, a rather large quantity of bitartrate of potash.

(6.) Oxalate of ammonia precipitated a trace of oxalate of lime.

The solid constituents consisted of 3.6 per cent. of saccharine strongly acid matter, which dissolved in water with a yellowish-brown color, from which solution afterwards a small quantity of tartrate of potash separated.

The proportion of alcohol was 10.6 per cent. of the wine; it contained a small quantity of butyric ether. Lactic acid could not be discovered in the residue after distillation.—*Phurm. Cen. Blatt.*

A Remarkable case of Poisoning with Lead, extending over a period of nearly four years—By EDWARD MURPHY, M. D., of New Harmony, Indiana.—Mr. R—, merchant, aged 42, of medium height, and rather stout habit of body; of bilious temperament, and

sound intellect; has always enjoyed good health, and no hereditary liability to disease; has always been temperate, and a close but active business man. During September 1843, had a slight attack of autumnal fever of short continuance, and throughout the following winter had been often afflicted with pains in his abdomen, which disturbed him a good deal.

About the last of February, 1844, was confined to his bed for several days, with excessive, intermitting abdominal pain, and obstinate constipation of his bowels; but, he thinks, without fever; and was treated by his physicians for an attack of acute peritonitis. The constipation was very obstinate, and only yielded after several days, to very large doses of medicine. But, I consider it impossible, that acute inflammation within the abdomen should have continued so long as this attack did, without producing some organic change among the abdominal viscera.

After an imperfect recovery, Mr. R. went to Louisville on business during the following March, where he was again attacked with the same symptoms—though not quite of the same severity—and was attended by a distinguished physician, who pronounced his disease to be abdominal neuralgia, stating, that it was a rather frequent complaint among mercantile men in that place, and prescribed accordingly. He also gave it as his opinion, that his former attack was the same disease and not peritonitis. Since that time Mr. R.'s complaint has been considered neuralgia, and treated as such.

From that time up to the 22d of Feb., 1846, he has been suffering almost constantly, with excessive pain in his abdomen, radiating from thence to all parts of his body, often of very great severity; obstinate constipation of his bowels, accompanied often with nausea and vomiting, (the patient attributing the nausea and vomiting to the very large doses of opium which he had been obliged to take;) was frequently confined to his bed; he lost flesh and strength notwithstanding a constant good appetite; and had a bloated though anæmic countenance. He had very much the appearance of a person in cachexia from malignant disease. There was a dirty yellow color of the skin, and a yellow discoloration

of the albuginea oculi simulating jaundice, the whole time. Sometimes during this period, he became affected with slight paralysis of the extensor muscles of the fingers of the right hand, with the exception of the index, which rendered him unable to write; his vision became imperfect; there was great mental prostration, approaching hypochondriasis,—indeed, he was totally unable to do business, throughout the greater part of this period, from mental imbecility, sometimes being unable to perform the minutest calculation, or to attend his customers, who generally considered him insane; was very irritable the whole time.

About this time, Mr. R. was attacked with what he thought to be apoplectic fits, having had four or five, and on the 24th, I was called in consultation. He was confined to his bed, very pale and feeble; sensible, although very weak in mind; would give an answer, in relation to his case, and immediately forget that he had done so: sometimes became alarmed at persons present, and again was much terrified at absent imaginary enemies, who were conspiring against him—a state resembling delirium tremens; speech, faltering and hesitating; sight, defective. His face was frequently affected with choreic convulsions, when he would complain of severe shooting pains through his body, and of which he was in constant dread; tongue, soft and broad; pulse feeble but natural as respects frequency; bowels, constipated; stomach, very irritable; chest, perfectly sound; sounds and rhythm of the heart natural; nothing unusual in the appearance of his urine; although very feeble, would sit up for a short time when desired. Considering it impossible that an individual should have had four or five fits of apoplexy in three or four days, without any lesion to the brain or symptoms denoting such, and on carefully interrogating his family—the physician in attendance not having seen him in a fit—I made out his attacks to be of an epileptiform character—being preceded by the horrid scream of epileptics accompanied with evident convulsions. I advised opening the bowels by active purgatives, opiates, nourishing diet, blister to the nuchæ, and sulph. quinia, when the bowels were well opened, and took my leave, after assuring his family that I did not consider his

present attack to be apoplexy, but probably a part of his old complaint, and gave an unfavorable prognosis.

Mr. R. remained in nearly the same state, but without another fit, until the 3d of March, when I was again called in and associated in the treatment of his case. By persistence in the above remedies, to which was added wine and brandy, he very gradually recovered to his late state of health. When so far recovered as to be able to set up, his defective vision became almost complete amaurosis, which continued some time, then gradually disappeared, but was not entirely recovered from; the patient was fully of the opinion, that it was caused by the quinia he had been taking, although never more than six grs. in twenty-four hours, and with no idiosyncrasy as to its action. There was also at this time increased paralysis of the right hand, the left also becoming slightly paralysed.

From the 16th of March, at which time my attendance ceased, up to Jan., 1847, when he placed himself in my hands for treatment of fistula of the anus, complicated with fissure, he continued to have the same attacks, of greater or less severity, with only short intervals of repose, being nearly worn out with constant suffering and bad health. As opium was his only relief, he generally prescribed for himself throughout the lengthened period of his sickness, except when his attack was unusually severe. After the cure of his fistula, his disease returned with greater severity, and of a more alarming appearance than ever.

On the 10th of June, in the absence of his regular physician, I was again consulted. Mr. R. was confined to his chamber and almost to his bed, the mere wreck of his former self. Scarcely able to sit up, weeping from excruciating pain, and in such a state of mind as to express a wish to commit suicide, and indeed he was afraid he should do so. His face, pale and wan, was marked by the deepest despair, from extreme suffering, imploring me strongly for relief; wrists entirely dropped from complete paralysis—being perfectly helpless, and unable to straighten either hand, unless by the aid of the opposite arm, and requiring all the care of an infant, in being fed, washed, &c., yet,

a comparatively good gripe with his hands; his abdomen seemed to be the centre as usual, from which his pain radiated, and it was with the greatest difficulty that I could persuade him, after a careful examination, of the non-existence of organic disease there. The slightest touch of the skin over the umbilicus, and indeed, over other parts of his body, produced such terrific pain as almost to throw him into convulsions, producing all the effects of an electric shock; while the greatest pressure over the same place, gave him no uneasiness; but rather relief; his bowels were always constipated, unless moved by medicine—was the constipation produced by the large quantity of opium which was taken, or did it depend on paralysis of the muscular tunic of the intestines? There was sometimes vomitings of a greenish watery fluid; tongue, flat and broad; pulse, very feeble, and more frequent than natural; his cachetic appearance was that of a person in the last stage of malignant disease; appetite comparatively good; his suffering was much more intense during the night than the day, unless relieved by excessively large doses of opium. From the balls of both thumbs, which were much atrophied, excruciating pains would arise, shooting with great severity up the arms and shoulders, to the back of his neck and head; the shoulders were affected with constant pain, especially the deltoid muscles, which also were slightly paralysed. The pain in his lower extremities was also very severe, commencing in the soles of his feet, which were so sore that he dreaded to touch the floor with them, and shooting up the limbs to the lumbar region with dreadful suffering. There was also at this time a new source of suffering, shooting pain through his testicles, of such severity, as almost to produce fainting; indeed to see him suffering, was the most heart-rending sight I ever witnessed, and I was greatly astonished to see how any human being should so long survive so much and such constant misery.

I stated to Mr. R., which I had done several times before, though not when attending him, that he presented in the strongest light, all the symptoms of poisoning with lead, and had it been possible that he could in any manner have been exposed to its influence, I

should have no hesitation in attributing all his sufferings and bad health to that cause. But, Mr. R. was a merchant, and in no way liable to be acted upon by lead or any of its salts in his business. There were no lead pipes or utensils used about the house; nor, had he taken it in any form as medicine during his whole life. The autumn before the commencement of his sickness, he built a new store and repaired his house, which was painted in the usual manner; and this was the only exposure to the influence of lead to which he could refer. I however considered, that this could not be the cause of itself, as I thought it impossible that its influence could have extended over a period of nearly four years.

His case seemed perfectly hopeless, and I firmly believed he would never leave his chamber again alive. As all the remedies recommended for neuralgia had been exhausted without any benefit, and as he had taken so much medicine from time to time, that his stomach gave way almost at the bare mention of it, I felt very much at a loss what to devise. I, however, advised Mr. R. to submit to an alterative course of mercury as a last resort; giving him to understand that I considered neuralgia, convulsions, and various anomalous affections, might depend upon a cachectic state of the body, from poison either taken into, or generated within it, and preventing its proper nutrition; and which might be controlled or removed by a course of mercury, as constitutional syphilis and malaria were; at any rate, it was possible that it might produce a new action in his system. This he dreaded very much, and offered a great many objections, which I removed; but he declined it at present.

June 17th.—To-day Mr. R. consented to take mercury. I gave him a one gr. blue pill, four times a day, with an occasional aperient, and continued the opium to relieve his sufferings. I applied blisters over various parts of his spine, which increased his pain so much, that I was obliged to heal them directly. This treatment was continued about three weeks, with an occasional rubbing in of mercurial ointment over his abdomen, when a considerable improvement was manifest. Treatment continued.

July 15.—Was summoned to Mr. R.,

when I expected another unfavorable turn in his disease had taken place, but was agreeably disappointed in finding him much relieved and improving, and down stairs. The statement which I had before repeatedly made to him, that he presented all the phenomena of poisoning with lead, made a very strong impression on his mind, so much so, that it constantly occupied his mind, and just brought to his recollection that he had been in the habit for many years of chewing lead, and that this habit extended so far back, that he was unable to date its commencement. Formerly, being very fond of his gun, he frequently took hunting excursions, on which occasions he always had a piece of bullet or shot in his mouth; when in the store, he seldom ever passed by the box containing the shot, without putting some in his mouth to chew. But, what he most liked from its agreeable taste, and of which he chewed a great deal, was the lead lining of tea boxes; besides, he considered that the pressure of the teeth on the metal enabled him better to bear his pain. I immediately replied, that the cause of all his suffering and bad health was perfectly clear, and at once assured him that he might yet be a sound man. I at once examined his gums for Dr. BURTON'S symptoms, and found the blue line over four or five teeth. I considered the case fairly made out, and never felt so much rejoiced as at that moment, to think that an individual, after such a prolonged period of suffering and bad health, whom all considered as beyond recovery, and almost in the grave, should by this discovery be yet restored to health, and usefulness. Not so my patient, however; he was very skeptical of my prognosis, not conceiving it possible that his disease could have originated from what to him appeared so slight a cause. I assured him that his case always appeared a very strange one to me, and I was always astonished to think that an healthy individual as he had always been, should have been reduced to such a protracted state of bad health, without any organic disease, unless from some evident cause, which had at last been discovered; that it was now rendered almost certain, that his first attack; which was considered acute peritonitis—and many subsequent ones, were attacks of lead colic. Further,

that his attack of autumnal fever, from which I date the commencement of his disease, had probably produced a debilitated state of the body, rendering it more susceptible to the influence of minute portions of the metal; also, that nearly every symptom, which writers have laid down as indicating poisoning with lead, had in his case been repeatedly and severely manifested; and the only reason why he did not before recover, was the continual renewal of the poison, whenever he was present where it could be obtained. Also, that we were now in a fair way of proving it, the cause being discovered, would in future be avoided, and he would continue well. I pointed to the present amelioration of his disease from the treatment he was pursuing, as a favorable indication that it depended upon some removable cause, as idiopathic neuralgia of such long standing was seldom benefited by any treatment. From all this, it will be seen that I had to urge a number of reasons to convince my patient of the real nature of his case, but without convincing him. I added acid sulph. aromat. to the former remedies, and by the 1st of August, his pains had nearly entirely subsided, his bowels were acting naturally, and he left off medicine, even opium, for the first time since the commencement of his sickness. I ordered splints to his wrists and hands, which gradually recovered their natural state.

Mr. R. recovered his health in every respect, and has continued well up to the present time, February, 1850, being again a strong, active business man. He thinks that the extensor muscles of his wrists and fingers are not quite so strong as before his disease commenced, which is probably true, as muscles which have long been inactive, require frequent and strong exercise to recover their proper tone, which cannot be given to these muscles; their function being merely extension, they cannot be exercised to any extent; however, the defect is very slight indeed.—*Western Lancet.*

Chloroform in Poisoning by Strychnie.—Mr. Munson of Kenton, Ohio, relates that a Mr. G., aged about 40, of intemperate habits, took, from among my medicines, a bottle of strychnie, and supposing it to be morphine, as he said,

swallowed a dose supposed to be about one or two grains. In about twenty minutes afterwards I was requested to see him, as he was supposed to be in a fit. I found him in the following condition:—The whole muscular system rigid; the muscles of the back, and of the upper and lower extremities, rigidly contracted; the head drawn back; articulation difficult; sense of tightness about the chest; perspiration flowing profusely from the face and chest. A number of the physicians of the place came to his assistance; the usual remedies recommended in such cases were resorted to, but without any mitigation of the urgent symptoms. The patient was failing rapidly under the increasing spasmodic action of the whole muscular system. It was now determined to administer chloroform, as death was apparently certain without some relief. One drachm of chloroform was put upon a silk handkerchief, and the patient directed to inhale it. The effect was decisive. The patient (who was at this time in a sitting posture, held so by assistants, who could not move him in the least degree without exciting the most frightful and alarming spasms) requested to be placed in a recumbent position, which was done without exciting any spasm. The chloroform was carefully administered for some hours, the patient holding the handkerchief most of the time himself, in order, as he said, "to keep off the dreadful spasms." From this time he recovered rapidly, and in two days after taking the poison he was able to proceed home, a distance of six or seven miles.—*Boston Med. and Sur. Journal.*

American Lard and its Oleine Called Lard-Oil.—It is a remarkable fact, that druggists are able to offer fine American lard at prices which stand in no proportion to those customary with us; but the following statements, partly communicated by a gentleman who had resided for three years in Cincinnati, and partly extracted from a statistical report of the commerce and industry of Cincinnati, give us an explanation of the circumstance. According to an official report of the United States of America, the number of pigs amounted, in 1840, to 26,301,393; but in 1847 the number had increased to about 45,000,000. In the

valley of the Mississippi there are farmers who keep as many as 1000 pigs, some of which weigh 700lbs. each. They are mostly fed with acorns, the fruits of various species of juglans, and with maize. The town of Cincinnati, situated in a very fruitful district, is the principal market for both pigs and pork in all Northern America. Most of the inhabitants are engaged in this trade, which commenced in 1826, but did not attain any great importance until 1833. In that year 85,000, but in 1847, 250,000 pigs were there sold, cured, and otherwise prepared for sale. The slaughter-houses in Cincinnati are very spacious and conveniently arranged. The animals are killed by a blow, and, in some larger establishments, by cutting off the heads of a number at one stroke by an instrument resembling a guillotine. The scalding is done in troughs, the water being kept hot by heated stones. One journeyman butcher in general cures thirty-one pigs daily. Not unfrequently Germans have exported to Germany from Cincinnati fresh salted hams in casks, the process of pickling going on during the voyage, and on their arrival nothing but smoking them was required. In the year 1848, 8000 hams were thus imported into Westphalia. In North America large quantities of saltpetre (Chili saltpetre?) are used, probably for the better preservation of the meat, which in time becomes much tougher in consequence. The killing season begins about the middle of November and lasts four months. The meat and bacon of about half the number of killed animals is pickled and brought to the sea-port towns of America for the supply of the shipping. In addition, large quantities are carried into the interior, and are likewise exported to the West Indies and South America. Smoked hams also find a ready sale in the latter countries. It is calculated that about 6000 persons are engaged in this trade, amongst whom are 1500 coopers. One of the principal products of the killed pigs is (besides the pork, bacon, candles, soap, leather, and bristles) the lard, both for exportation and home consumption. Packed in tin and wooden boxes considerable quantities of lard are every year exported to the West Indies, especially to the Havannah, where it is used instead of butter. In North America, which produces plenty of the latter, the lard is made little use

of. A great quantity of lard in a solid and liquid state, in the form of oil, is exported to France and England as well as to the eastern parts of the United States. In the sea-port towns of the latter, and also in Cincinnati, the manufacture of lard-oil forms an important branch of industry. In one of the greatest slaughter-houses in Cincinnati, where every year about 30,000 pigs are killed, exclusively for the purpose of extracting the lard, the animals are thrown, after nothing but the hams have been cut off, into seven large butts, six of which hold 15,000lbs., and one 60,000lbs. These masses of pork, fat, and bones, are, by means of a steam-engine at a pressure of 70lbs. to the inch, so compressed that even the bones become quite pulverized. The fat is conducted by tubes furnished with cocks into other vessels, and the residue used as manure or for the manufacture of prussiate of potash. In this manner 600 pigs are, on the average, daily treated in this manufactory, besides the refuse brought from other slaughter-houses, such as heads, bones, ribs, &c. The quantity of fat obtained in this way is clarified by a steam apparatus into the purest and finest lard; from this the lard-oil is prepared by depriving the lard of the stearine contained in it. This stearine is identical with that which was first imported to Germany in the year 1840, under the name of *solar-stearine*. About thirty manufactories of lard-oil exist in Cincinnati, the largest of which has till now produced 140,000lbs. of oil and stearine, and is still on the increase. In the year 1847, 11,000,000lbs. of lard were manufactured; five-sevenths of which quantity were used for making oil, which filled 24,000 casks, each containing forty-one to forty-two gallons. The other two-sevenths were used for stearine. The lard-oil is used in the eastern states of North America for mixing with sperm-oil: in France, however, large quantities are employed for adulterating olive-oil. The French chemists are so skilful in this respect that they can mix sixty-five to seventy per cent. of lard-oil without the adulteration being easily discovered. If, however, the oil is left standing for some time at a low temperature, a quantity of stearine subsides to the bottom of the bottle (!)

In order to manufacture candles from the stearine it is compressed by a hydraulic press to five-eighths of its volume;

the other three-eighths, which flow off as impure oleine, are used for soap-boiling. Till 1847, at least 3,000,000lbs. of stearine were every year manufactured in Cincinnati into candles and soap, and the manufacturers expect they shall be able in future to furnish, on an average, every day 60,000lbs of candles.

From the refuse of those pigs killed for other purposes, and from the flesh of dead animals, in which about eighty per cent. of lard are contained, the latter is extracted for the use of soap-boiling only. 100,000lbs. of common soap, of the annual value of 200,000 dollars are thus manufactured, and as much of a better quality; that this value is increased by one-fourth.

Although the glue extracted from the feet of the pigs has but little value, yet the value of the bristles amounts annually to 50,000 dollars. About 100 persons are engaged in preparing them, and they are exclusively sold in the interior of the country,

All other parts, as, for example, the hard parts of the feet, &c., are manufactured into prussiate of potash. The cotton printers in New England lay a great value upon this pigment. The blood of pigs is said to yield a beautiful prussian blue. The American lard is distinguished from others by a greater proportion of oleine, probably in consequence of the kind of food, of the mode of fattening, and of the peculiar preparation; for American lard is not merely extracted from the fat deposited near the kidneys, but from all parts of the animal indiscriminately, including the marrow of the bones and the fat of the brain.—*Jahrbuch of. Pract. Pharmacie and Phar. Jour.*

MEDICAL JURISPRUDENCE.

Incompetency of Medical Evidence in certain cases.—In a late trial before the Supreme Court at Lowell, in a case of alleged lunacy, medical testimony was brought to bear upon both sides. The petitioner, an aged man, among other testimony offered by him to prove his sanity, brought forward several most respectable and distinguished physicians of this city; the respondent, who was the guardian, having Drs. Bell and Fox, of the McLean Lunatic Asylum, on his

side. Judge Metcalf, in his charge to the jury, ruled all the *medical* testimony as *incompetent*, excepting Drs. Bell and Fox's; they being considered the only *experts*. However, the intelligent jury thought differently, and rendered their verdict for the petitioner,—a just rebuke to such a judicial decision. Who are considered competent to certify to insanity in case of admission into lunatic asylums? Would not these same medical gentlemen have been deemed suitable? If so, we really should like to know if they are not *experts* enough to tell when their patient has recovered his reason? Such partiality for *experts*, in judicial investigations, is getting to be more fashionable than wise. Common sense is, after all, the best guide for a magistrate; for then he can ascertain for *himself* who is qualified to give an opinion, and who is not. This is also the best guide for a professional, as well as a non-professional man, in ascertaining whether there is soundness of mind; and we are surprised to learn that a magistrate should feel inclined to exclude medical testimony in such a case, from the fact that the witnesses were not considered *experts*.—*Boston Med. Jour.*

Poisoning with Camphor. By Dr. SCHAFF, of Strasbourg.—On Monday, 8th April, 1850, an Innkeeper's wife at Neudorf, near Strasbourg, gave to her two boys, one aged five, the other three years, and to her infant daughter, aged eighteen months, a dose of powdered camphor, equivalent to about half a teaspoonful for each, the whole representing about thirty grains. For several previous days the same drug had been administered, but always in smaller doses, and never on empty stomachs. It was intended as a vermifuge for the boys, and to remedy some intestinal derangement in the girl.

The first unusual phenomenon which the parents observed after the swallowing of the drug was an excessive paleness of face, with a fixed and stupid look. Presently there occurred a little delirium, and some heat in the throat and thirst were complained of; next there followed nausea, vertigo, and slight twitchings of the face. A little later still there supervened vomitings and true convulsions, with loss of con-

sciousness more or less prolonged, and also frequent desire to make water. This was reported to the doctor on his arrival, which was half an hour after the camphor had been swallowed. These effects were manifested by all the children, and, with some slight variations, in nearly equal degree.

When first introduced to the scene, Dr. Schaaff was forcibly struck by the appearance of the three little unfortunates, simultaneously affected with violent convulsions, with disordered expression of countenance, livid aspect, and tormented with constant retchings.

The oldest boy, more than the others, was affected with clonic convulsive movements, leaving between their intervals of a few seconds, sometimes of a minute. The arms were more convulsed than the lower limbs. Several times the body rolled itself up into a ball, and was projected out again with great activity. The author had never seen such an appearance before. The face, alternately pale, and livid was the seat of incessant spasmodic movements. The eyelids in constant agitation, and half closed, showed the eyeballs turned upwards and outwards. There was a little froth about the teeth, which were firmly clenched. The skin appeared in general to be pale and moist, and the heat of the surface diminished. Sometimes there was complete loss of consciousness, at others the boy recovered his senses, and obeyed the orders given him. The respiration was short and noisy. The pulse uncountable, chiefly from the agitation of the body. There was frequent retching followed by vomiting from the remedies used, and repeated discharges from the bowels and bladder. The urine appeared to Dr. S. to possess the odour of camphor, although this was denied by some of the bystanders.

The whole of these phenomena lasted, with more or less intensity, for three consecutive hours, then there came on a comatose sleep, which lasted till evening. The night was good, and beyond a little discomfort, the next morning showed no traces of the violence of the previous day.

As regards treatment, the author not knowing of any positive antidote for camphor, commenced by taking every means for expelling the poison. He

gave an emetic, laxatives, enemata emollient, oleaginous, and narcotic,—and afterwards an opiate draught. In regard to this last, he inferred that as camphor has sometimes been employed to remedy some of the symptoms caused by opium, the latter might in its turn be able to subdue the violent action of the camphor. At all events, the formidable symptoms disappeared under its use with comparative rapidity. It is to be remarked that the first vomiting did not take place till an hour after the swallowing of the camphor, so that there was abundant time for its absorption.

The second boy presented the same symptoms as his brother, but in a less formidable degree. He vomited spontaneously and at an earlier period, to which circumstance, although feebler and younger than the other, he owed a more speedy restoration to health. In fact, an hour after the commencement of the symptoms, a profound sleep, accompanied by a profuse perspiration, soon brought everything to rights. The following are the facts connected with the little girl, whose life was sacrificed to the deplorable mistake of her parents:—She was delicate, and ill-developed for her age had had a difficult dentition, and latterly suffered from an affection of the respiration of rather severe character, which had itself caused some convulsive attacks. But more recently her health had been restored, and the slight flatulency and want of appetite which had been the pretext for giving the camphor, were quite unimportant. This child had been the first to show the symptoms of poisoning. The convulsions in her were less violent than in her elder brother; but were prolonged without interruption from 7 a.m. till 2 p.m. From this period they presented intermissions of greater or less duration; but after this the recurrences were more violent. The peculiarity in her case was, that in the face they affected only the right side; but there they manifested themselves, even when the rest of the body was unconvulsed, and continued to cause hideous grimaces till the death of the child, which took place at seven p.m. She never recovered consciousness from the beginning to the end of her illness.—There were also observed involuntary evacuations and vomitings, which, however, did not come on until a late period, notwithstanding the means used to ex-

cite them; and there was also frequent discharge of urine. Further, there was a pallid countenance, occasionally blue and covered with cold sweat; the mouth slabbered, the eyes fixed and turned upwards, the features distorted by the spasms, the head thrown backwards, the respiration irregular and hurried.—Towards the middle of the day there were some symptoms of improvement; but these were deceptive, violent convulsions recurred, and the child died in one of the paroxysms.

The treatment which had been applied to the older boy was followed perseveringly in this case. With the view to producing powerful revulsion towards the skin, Dr. S. used general friction with very warm mustard and water. The applications of leeches, which he at one time thought of on account of the convulsions, was abandoned, because there were no symptoms of congestions about the head, whilst the constant agitations of the body prevented their being applied.

Dissection twenty-four hours after death.—The body generally was extremely pale; the abdomen much distended by gases; the mouth presented no traces of redness or ulceration; the stomach and all the intestinal convulsions were extremely distended. They exhaled a peculiar nauseous odour. The interior of the stomach showed no traces of redness; on the contrary, both the gastric and intestinal mucous membranes were colourless. There were found in these organs, some detached whitish pellicles like fragments of croupy false membranes. One loop of small intestine, to the extent of about four inches, presented the remarkable appearance of empysema existing at once below both the peritoneal and mucous surfaces.

The large bloodvessels of the abdomen appeared unusually empty, and the liver and spleen, from their paleness, seemed to participate in this deficiency of blood. The parents did not permit the other cavities to be examined.—*Dr. Schaaff in Gazette Méd. de Strasbourg.* [This is, we believe, the only recorded case of fatal poisoning by camphor in the human subject. Its effects are well known to be very variable; but in experiments on animals, the tetanic spasms observed in the above case have generally been a prominent

symptom. From some introductory remarks of Dr. Schaaff, it appears that camphor is a frequent remedy in domestic practice in France. It is not so in this country; but it is obvious that though large doses have been taken without fatal effects, its use in such quantities is dangerous, especially in young subjects!—*Ed. Monthly Jour.*

Poisoning with Bitter Almond.—

Were not the obtuseness of the organs of taste in many individuals a matter of common observation, it might appear extraordinary that any one should eat a sufficiency of bitter almonds in the natural state to produce dangerous poisoning. There is no doubt, however, that several fatal cases of poisoning with this substance have occurred, besides others, in which life was saved only by prompt measures of relief. Of the latter kind is the following, which has been lately communicated to us by Mr. W. T. Jones, of Cork:—A lad, aged 15, son of a wholesale grocer, ate a quantity of bitter almonds with sugar. After a time— but how long, he could not tell—he felt a rather pleasing sensation, became suddenly giddy, fell down, and lost consciousness and recollection. It could not be ascertained how long he lay in this state. When Mr. Jones was called to see him, he found him lying near a cask of bitter almonds. The extremities were extended and somewhat stiff, but not altogether rigid; the pupils were dilated and insensible to light; the respiration was not perceptible; the heart's action was barely so, and the pulse was feeble and intermitting. A solution containing half an ounce of hydrochlorate of ammonia, was introduced immediately with the stomach-pump, and instantly followed by a solution of carbonate of potash. An instantaneous effect was produced. The jaw, previously closed spasmodically, so as to impede the introduction of the stomach-pump tube, became instantly relaxed; consciousness partially returned; and on being asked a question, he could answer, though confusedly. A mixture of two grains of tartar emetic and a scruple of ipecacuanah powder now occasioned vomiting, which was kept up by warm water occasionally for half an hour; and in that time he brought up about eight troy ounces of bitter al-

monds. After this he quickly recovered. He had no recollection of what had passed until he vomited after taking the emetic. *Dr. Christison in Monthly Jour.*

MISCELLANEOUS.

Fruits of Mesmerism.—That the mischief resulting from the lies and deceptions of mesmerism is frightful, has been proved repeatedly; we were therefore not surprised at the vile accusations made the other day in Paris by a mesmeric impostor. The wretched creature who, with so many other rouges, daily panders in mesmeric sleep to the stupid love of the wonderful in the Parisian gulls, destroyed by his calumnious insinuations the peace of two families, in the most wicked and heartless manner; and so high did the indignation run, that even the authorities, so watchful of political delinquents, and so supine towards the herds of ignorant pretenders who daily figure in public advertisements, instituted inquiries regarding this disgusting transaction. The whole business will be brought before a court of justice, and though we have but very little faith in the support of government in such matters, we trust that the guilty parties will meet their full deserts. The circumstances are briefly as follows:—It would appear that a young merchant, in good circumstances, lately married a young lady. Their union was at first attended with unclouded happiness; but as the husband was obliged to make frequent journeys, his young wife was beset with all the pangs of jealousy. Being, as it appears, a weak-minded woman, she went to one of those mesmeric rogues, who live sumptuously upon public credulity, and the wretch of course told her that her fears were well founded, and that her husband was faithless. The latter was severely taxed by his wife for his supposed irregularities, and she confessed to him whence she had received her information. He insisted upon going with her to the slandering accuser, and when they presented themselves before the *sleepers*, who guessed the intentions of the indignant husband, he requested that the latter might retire, and being left with the foolish wife, told her with the utmost effrontery that her husband was intimate with a lady, whose

direction he gave her with great accuracy. No sooner had the wife rejoined her husband than she upbraided him with his conduct; but he, conscious of his innocence, forthwith proceeded with her to the address of his supposed paramour. They were introduced to a lady, who politely asked the object of their visit, and he frankly asked her, before his wife, whether there was any foundation for the accusations brought against him. The lady gave a shriek, and ran away; her mother hastened into the room, and after some explanation it turned out that this was the second visit of the kind which she and her daughter (of a well-known and respectable family) had received through the vile machinations of the mesmeric impostor. From inquiries which were instituted, a whole string of enormities of various descriptions was brought against the "clairvoyant," and he is now in the hands of justice. The amount of gullibility of the public is enormous. The miserable appetite for the strange and miraculous is not to be suddenly subdued by any means at present within our reach.—*Lancet.*

Admiralty circular respecting the rank and position of Ass. Surgs.—

"My lords commissioners of the Admiralty are pleased to direct that the following regulations be established with reference to the rank and position of the assistant-surgeons of the Royal Navy:—

"1st. The assistant-surgeons are to be divided into two classes.

"2nd. The first class is to consist of all those who have completed three years' servitude from the period of their first entry, one year of which, at least, must be on board a commissioned ship, and the other two may be served in one of H. M. Naval Hospitals, and who have passed the examination for surgeon, either at home or abroad, as directed by the Admiralty Instruction (Chap. II. Art. 26, p. 26); but in case the service on which the ship may be employed, should render it impossible that three surgeons can be assembled for a considerable period of time, then the captain may give an order to the surgeon of the ship to examine the assistant-surgeon whose period of time has expired, and, if found competent, may grant him a

temporary certificate until the regular officers be assembled.

"3rd. Assistant-surgeons who have served more than three years, who have passed the examination for surgeon under the above conditions, are to rank next to naval instructors, and are to mess with the ward-room officers, to be allowed cabins when the accommodation and space on board will admit.

"4th. The second class of assistant-surgeons is to consist of all those who have not served three years, and those who have not passed their examination for surgeon.

"5th. The cabins specified in their lordships' order of the 26th of February, 1846, are to be strictly appropriated to the officers mentioned in that order, and their lordships' instructions on that head are to be fully carried out.

"6th. First-class assistant-surgeons, who may be serving in small vessels commanded by lieutenants, are to mess in the gun-room with the other officers.

"7th. The above regulations are to be carried into effect on the receipt of this circular order.

"By command of their lordships,
 "(Signed) J. PARKER.
 "Admiralty, July 17, 1850."

As soon as the Admiralty minute was promulgated at Portsmouth, relative to the award of the privilege of the ward-room to assistant-surgeons, Captain Sir Henry Blackwood, of Her Majesty's ship *Vengeance*, issued an order that the assistant-surgeons of the *Vengeance* should take their seats in the ward-room.—*Med. Gazette*.

Honours Conferred on Medical Men in the Army and Navy.—The Queen has been graciously pleased to make and ordain a Special Statute of the Most Hon. Order of the Bath for the purpose of authorizing the admission into the Military Divisions of the second and third classes of the said Most Hon. Order of such officers of the Commissariat and Medical Departments of the Army and Navy, and of the East India Company's Army and Navy, as by their meritorious services have already or may hereafter be deemed by Her Majesty to have deserved such distinction. Her Majesty has accordingly been pleased to give orders for appointing—

Sir James M'Grigor, Bart., Doctor of Medicine, Director-General of the Medical Department of the army;

Sir William Burnett, Knight, Doctor of Medicine, Director-General of the Medical Department of the Navy; and

James Thompson, Esq., Inspector-General of Hospitals on the Bengal Establishment on the East India Company's Services, to be Ordinary Members of the Military Division of the Second Class, or *Knights Commanders* of the said Orders.

And Her Majesty has further been pleased to give orders for appointing the following Officers to be Ordinary Members of the Military Division of the Third Class, or *Companions of the said Most Hon. Orders*, viz.:

Duncan McArthur, Esq., Doctor of Medicine, retired Physician of the Fleet;
 Sir John Webb, Knight, Director-General of the Medical Department of the Ordnance;

Sir James Robert Grant, Knight, Doctor of Medicine, Inspector-General of Hospitals;

John Gunning, Esq., Inspector-General of Hospitals;

John Robert Hume, Esq., Doctor of Medicine, Inspector-General of Hospitals;

Sir John Richardson, Knight, Doctor of Medicine, Inspector of Hospitals and Fleets;

Benjamin Fonseca Outram, Esq., Doctor of Medicine, retired Inspector of Hospitals and Fleets;

Robert Perkins Hillyar, Esq., retired Inspector of Hospitals and Fleets;

Sir George Magrath, Knight, Doctor of Medicine, retired Inspector of Hospitals and Fleets;

Sir John Liddell, Knight, Doctor of Medicine, Inspector of Hospital and Fleets;

Henry Franklin, Esq., Inspector-General of Hospitals;

James French, Esq., Doctor of Medicine, Inspector-General of Hospitals;

Stephen Woolriche, Esq., Inspector-General of Hospitals;

Charles Renny, Esq., Superintending Surgeon the Bengal Establishment of the East India Company's Service;

B. W. McLeod, Esq., Doctor of Medicine, Superintending Surgeon on the

Bengal Establishment of the East India Company's Service;

John Wylie, Esq., Doctor of Medicine, Inspector-General of Hospitals on the Madras Establishment of the East India Company's Service; and

Charles Doyle Straker, Esq., Doctor of Medicine, Superintending Surgeon on the Bombay Establishment of the East India Company's Service.—*Med. Gaz.*

British American Journal.

MONTREAL, FEBRUARY 1, 1851.

Montreal Eye and Ear Institution.

—Last year we published the Annual Report of this Institution; we, this year, record its further progress. By the report of cases admitted and treated, we perceive a steady advance in number; and from the period of its establishment in 1845, the total number of cases treated has been 1809. We think there are few charities more eminently worthy of support than this one; and Mr. Howard deserves credit for the zeal with which he manages the institution, and the thanks of the community for his philanthropic labours.

REPORT OF CASES OF DISEASES OF THE EYE.

Ophthalmia—Simple Conjunctivitis	30
“ Chronic Conjunctivitis	16
“ Purulent	10
“ Gonorrhœal	3
“ Pustular	12
“ Strumous or Phlyctenular	38
“ From Eruptive Fevers	2
Corneitis	5
Iritis	15
Sclerotitis	39
Retinitis	3
Choroiditis	0
Opacities of the Cornea	12
Staphyloma	4
Ulcers of the Cornea	36
Cataract	16
Amaurosis	8
Glaucoma	0
Disease of the Eye-lids	46
Disease of the Lachrymal Organs	14

Wounds of the Eye	15
Strabismus or Squint	12
Pterygium	7
Malignant Disease of the Eye	1
Artificial Pupil	1
Tumours of the Orbit	0
	348

REPORT OF CASES OF DISEASES OF THE EAR.

Scaly Eruptions in the Meatus	5
Polypus in the Meatus	2
Granular Tympanum	4
Thickening of the Tympanum	1
Rupture of the Tympanum from a blow on the Ear	1
Foreign Bodies in the Meatus	3
Hardened Cerumen in the Meatus	4
Abscess in the Meatus	4
Otorrhœa	8
Morbid Conditions of the Eustachian Tube and Middle Ear	8
Morbid States of the Internal Ear	10
Otitis	1
Otalgia	1
	52

RESULTS.

Diseases of the Eye	Cured	242
“	Relieved	63
“	Incurable	10
Discharged for want of Hospital convenience		9
Under Treatment		24
		348

Diseases of the Ear	Cured	39
“	Relieved	9
“	Incurable	4
Discharged for want of Hospital convenience		0
Under Treatment		0
		52

CORRESPONDENCE.

MEDICAL FEES.

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

SIR,—As it is by no means unusual for patients to dispute the payment of medical accounts—a practice which they are encouraged to pursue by some of the decisions of our learned Judges—it may not be without advantage to bring before your readers the

particulars of a case lately tried in England. Mr. James Haudy, a Surgeon and Apothecary, sued an Attorney named Heuson for the sum of £7. 0s. 6d., "for medicines and attendances furnished to the defendant's family." During the trial it was proved that medicines were supplied, but the plaintiff could not prove the number of visits except by his day-book and the testimony of his apprentice. As it frequently happens that practitioners in this city are defrauded by a similar difficulty in *proving* the payment of visits, it is to be hoped that the decision of the learned Judge in the above case will serve as a precedent in all future suits:—"Lord Tenterden" said,—“Gentlemen of the Jury, this action has been brought, as you have heard stated by Mr. Haudy, a respectable Surgeon, residing in Waterloo Bridge Road, against the defendant, Mr. W. S. Heuson, an Attorney of this Court, for the recovery of the sum of £7. 0s. 6d., for medicines and attendance. The first and last items are not disputed. In one part of the bill there is a charge of five guineas, which appears to be for five weeks attendance and medicines. There does not appear to be much dispute as to the charge for the medicines, but for the visits; and of these it is said there is no proof; but I cannot see how a medical man is to prove these attendances. It may be said that when he makes them he has his servant behind his carriage, or with him; but what can that servant prove? The opposing Counsel says, that the persons in the house of the patient might be called to prove the attendances; but how are these servants or persons to be got at, or how are their names to be obtained? I think, gentlemen, that the plaintiff has proved as much as can be expected; and Mr. Dixon (the Surgeon's apprentice) proves, that on the plaintiff's return from his daily professional calls, the visits were entered in a book by him, under the plaintiff's order, or by Mr. Haudy himself. I cannot see, if a medical man pursues the same honourable plan which this gentleman has done, of not sending in large and useless quantities of medicine, how he is to be remunerated, but by being paid for his attendances. I will hand you the bill, which you will please inspect; and from the evidence given, you will say whether you consider this to be a fair and just demand or not, and give your verdict accordingly.” The Jury, after a minute's consideration, returned a verdict for the plaintiff—damages £7. 0s. 6d. and costs.—*Lancet* for Nov. 23, 1850.

Happily for Mr. Haudy his case was not tried in Canada, or he might have been informed by one of our Daniels, that he could not sue for medical attendance unless he supplied medicine at such visits, whilst a second would have proved to his satisfaction that his day-book was no testimony as to the fact of the visits having been paid, but he must go to *St. Sin*, or *Kamouraska*, to hunt up the servants lately in the employment of the defendant to prove that he actually did pay the visits. I believe, Sir, that it is within your own knowledge, that two of our Judges have actually given decisions to the above effect.

I am, Sir,

Your obdt. servt.,

MEDICUS.

To the Editor of the British American Medical Journal.

MEDICAL PSEUDO-LIBERALITY:

“How much did you raise for that woman with the sick family you was round with a paper for?” enquired a mechanic from his neighbour the other day, in my hearing. “Oh! hear’s the list,” replied the latter; you see after you had agreed to let em have two dollars in shoes out of your shop, Mr. Tapes give twelve yards of printed calico to make frocks; old Spaving ‘greed to haul a load of wood; Seetob sent em up a couple bars of soap; Empkins paid his shar in bread; Jim Ryan told me to put down his name for a dollar to be taken out in sawing and splitting, when he is sober enough to tend to it, and Dr. Koles offered to physic the hull family for nouthin. if Womifuge would let em have the stuff out of his poticairey.” “Wall I guess he’s comin out; a man as rich as the Docter, to try for to git off with walkin in and out of the poor Shanty, and tellin the poor divils with a long face when they are to take a physic or a metic and leaving Womifuge to find it for em.”

In this manner was received the contribution, which struck me as being of infinitely more vital importance to a destitute family suffering from Scarlet Fever, than any one of those so approvingly noted by the charitable Tinsmith, who was distinguishing himself upon this occasion.

Not one of the other contributors whose autographs flourished upon the subscription list, (the Dr's did not appear) had invested in their business, the paltry portion of the proceeds of which they thus ostentatiously bestowed, one tithe the amount of money and bodily and mental labour that it had cost Dr.

KK in attaining his position:—Not one offered to place himself in close contact with a highly infectious malady, and perhaps become the vehicle of death, and disease to those who cheered his fireside; to subject himself to the importunate summons of the feverish sufferers at all seasons and at all hours; to assume before high Heaven a responsibility involving the life of a fellow-being, to watch the ebbing tide of vitality with the heart-sickening sense of the insufficiency of human science, to pore over books in the anxious search for some feeble ray to clear the dark uncertainty of the result of the treatment, to perform the most loathsome offices in the midst of squalid misery, and while thus occupied to sustain the loss of other business of an agreeable and remunerative character.

Not one of the other donors had offered to expose his reputation to be scanned by unfriendly eyes, to have the most unworthy motives attributed to his conduct, and to have any failure in his kind exertions ascribed to want of skill in his vocation. Yet evidently the apothecary, the baker, and even the wood-sawyer whose subscription depended upon a contingency, were all regarded in the light of *liberal* men in comparison with the Doctor, and in this instance they exercised their judgment precisely in the same way as, I am sorry to say a majority of the mass of the people usually do at the present day.

From long usage these gratuitous services are expected by the public as a matter of course. Even so universal has this impression become, that legislation, while it denies any encouragement, or protection to the student, and practitioner of medicine enforces the performance of certain duties without fee or hope of reward.

To nearly all public charities the Medical Profession is alone expected to cheerfully render its services, in return for the supposed eclat and advantages the individual may derive from the situation of consulting Physician, Surgeon, &c., to—Dispensary, Hospital, as the title may be. The Clergy of all the various denominations look for an immunity from all charge at the hands of the Dr. but patiently and willingly submit to the exactions of the druggist, and although they would recoil in holy horror from the payment of a Doctor's fee, they willingly pay an exorbitant price for some showily labelled catholicon.

In requital of this gratis medication, they become puffers for their favorites, or interfere by urging upon the patient untimely

and unnecessary consultations, or wholly regardless of the interests of a profession to which they are so deeply indebted, advocate quack medicaments, or exclusive and empirical systems of medicine. Every neophyte in the practice of medicine, vainly imagines that a course of advice gratis will ensure for him the favourable notice of the Lady Bountiful of his town or village, and in this delusion casts his bread upon the waters with the hope of reaping golden opinions as well as more substantial returns after many days. Another source of detriment to the interests of the profession, originates in the mistaken liberality of refusing compensation from intimate friends, and connections. It is truly surprising how little gratitude such munificence begets, and in how short a period it is entirely forgotten. Frequently the recipients vilify the obligation and repay it with obloquy. Every physician should bear in mind the duty of upholding the value of the benefits conferred by the *ars medendi*, and never allow private feeling to preclude his demanding some unequivocal indication of a due appreciation of this usefulness.

All urgent applications for aid must of course be humanely and promptly responded to, regardless of emolument; but the moment of imminent danger once passed, the practitioner should firmly insist upon the community making provision for the further attendance and sustenance of the patient, and in the absence of any government provisions his fees should be defrayed by subscription. If he be of a benevolent disposition his own contribution may far exceed any profit he shall derive from the case, but the recognition of his *right* to indemnification for his labours from some quarter should be steadfastly urged.

It is a fact well known to the people at large, that medical attendance on the sick in indigent circumstances, usually falls to the lot of the junior practitioners, and so far from any thanks being awarded for their services, it is looked upon as a necessary step in their professional career, like the free distribution of the various ingenious forms of advertisements adopted by persons in trade. The young Drs. with keen alacrity pounce upon every victim.

“As puffing quacks some caitiff wretch procure to swear the pill or drop, has wrought a cure,” the latter generally awakes to health with astonishment, and delight at his lucky preservation from the experiments of the tyro. There appears very properly to be a popular feeling against the establishment in this country of those con-

servatories, for fostering the groth of laziness and mendicity, similar to the poor houses of England or the alms houses of the United States. A provision however might be made by the municipal councils of the different counties to supply food and medical aid to diseased paupers, many of whom now actually perish from sheer destitution. Medical men in Canada generally sustain the loss of at least one third of their lawful debts through the dishonesty of the parties who employ them upon the credit system." It is peculiarly oppressive in addition to impose upon *those alone*, the entire medical charity of the country. This state of affairs should be combatted unanimsly by the profession: through the press, by private exertion, it should be placed prominently before society: the different medical societies should take it into serious con-

sideration, and rules should be submitted for the guidance of practitioners to obviate the evil influence of allowing so important a portion of their labours to remain unacknowledged many impoverished persons are compelled to pay for medical attendance who are infinitely less competent than the clergy, and if the latter will persist in the advocacy of charlatannerie and supernatural agency in therapeutics, they should be allowed to do so without having any cause of self-reproach for their ingratitude. The known beneficence of our profession will prevent the minister of the Gospel from sustaining any loss by such an arrangement by contributing to his support at least an equivalent, and the result would be to give to the latter a feeling of more honorable independence. (H.)

St. Catherines, 22nd Jan., 1851.

METEOROLOGICAL REGISTER at MONTREAL, for the Month of DEC, 1850.

DATE.	THERMOMETER.				BAROMETER.				WIND.			WEATHER.		
	7 A.M.	3 P.M.	10 P.M.	Mean.	7 A.M.	3 P.M.	10 P.M.	Mean.	7 A.M.	3 P.M.	10 P.M.	7 A.M.	3 P.M.	10 P.M.
1	+37	+38	+29	+37.5	29.59	29.67	29.79	29.68	W	W	N W	Fair	Fair	Fair
2	" 25	" 32	" 24	" 28.5	29.86	29.87	29.97	29.90	N	N	N E	Fair	Fair	Fair
3	" 23	" 28	" 36	" 28.5	29.92	29.68	29.48	29.68	N E	N E	N E	Clo'dy	Snow	O'rcs't
4	" 35	" 39	" 32	" 37.	29.74	29.77	29.85	29.79	W	S W	N	Fair	Fair	Fair
5	" 30	" 32	" 28	" 31.	29.90	29.87	29.90	29.89	N	S W	S W	Clo'dy	Clo'dy	Fair
6	" 21	" 26	" 21	" 23.5	30.08	30.05	30.04	30.06	S W	W	W	Fair	Fair	Fair
7	" 23	" 23	" 21	" 23.5	29.50	29.49	29.15	29.48	S W	N E	N E	Snow	Snow	Snow
8	" 14	" 15	" 14	" 14.5	29.28	29.47	29.61	29.45	N E	N E	N E	Fair	Fair	O'rcs't
9	" 20	" 27	" 25	" 23.5	29.64	29.56	29.53	29.58	S W	S W	S W	O'rcs't	Snow	Snow
10	" 19	" 14	" 4	" 16.5	29.63	29.70	29.78	29.70	W	W N W	N	Clo'dy	Fair	Clo'dy
11	" 8	" 11	" 12	" 9.5	29.67	29.55	29.62	29.61	N by W	N by W	N N W	Fair	Snow	Clo'dy
12	" 23	" 17	" 1	" 20.	29.67	29.77	29.91	29.71	N N W	N by E	N by E	Fair	Clo'dy	Clo'dy
13	- 6	" 5	" 0	- 0.5	30.10	30.09	30.15	30.11	W	W	W	Fair	Fair	Fair
14	" 6	" 27	" 20	" 16.	30.04	29.90	29.89	29.94	S W	S	S	Clo'dy	Clo'dy	Fair
15	" 18	" 30	" 32	" 24.	29.87	29.74	29.73	29.78	S	S	S by E	O'rcs't	Clo'dy	O'rcs't
16	" 32	" 28	" 14	" 30.	29.82	29.84	29.76	29.81	N W	N W	N W	O'rcs't	Clo'dy	Snow
17	" 13	" 19	" 10	" 16.	29.70	29.74	29.85	29.76	N W	N W	N W	Snow	Snow	Fair
18	" 3	" 7	" 1	" 5.	29.93	30.04	30.15	30.06	N	N	W	Fair	Fair	Fair
19	- 8	- 1	" 2	- 4.5	30.21	29.95	29.70	29.95	S W	S W	S W	Fair	Snow	Fair
20	" 8	" 11	" 3	" 9.5	29.75	29.77	29.84	29.79	S S W	W N W	S W	Clo'dy	O'rcs't	Fair
21	" 16	" 30	" 19	" 23.	29.62	29.48	29.70	29.60	S W	S W	S W	Snow	Snow	Fair
22	" 3	" 6	" 5	" 4.5	29.77	29.86	29.68	29.77	W N W	N N E	N N E	Fair	Fair	Fair
23	" 7	" 8	" 5	" 7.5	29.20	29.14	29.53	29.29	N	N	N W	Snow	Snow	St'rm
24	- 9	" 0	- 2	- 4.5	30.14	30.16	30.22	30.17	S	S W	S W	Fair	Fair	Fair
25	" 3	" 19	" 7	" 11.	30.10	29.71	29.50	29.77	S	E S E	E S E	Clo'dy	Clo'dy	Snow
26	" 11	" 25	" 21	" 18.	29.47	29.42	29.46	29.45	S	S W	S W	Clo'dy	Snow	O'rcs't
27	" 26	" 33	" 25	" 29.5	29.44	29.57	29.65	29.55	S S W	S W	S W	Fair	Snow	Snow
28	" 0	" 6	- 2	" 3.	30.01	30.00	29.90	29.97	N	N	N	Fair	Fair	O'rcs't
29	" 4	" 10	" 5	" 7.	29.76	29.78	30.00	29.85	N W	W	W	Su st'r	Snow	O'rcs't
30	- 6	" 5	- 1	" 0.5	30.23	30.34	30.46	30.36	W	S W	W	Fair	Fair	Fair
31	- 8	" 8	" 2	" 0.	30.40	30.08	29.80	30.09	N	N	N W	Fair	Fair	O'rcs't

Therm { Maximum +39° on the 4th, at 3 P. M.
 { Minimum, +9° " 24th, at 7 A. M.
 Mean of the Month, +15.6°

Barom. { Maximum, 30.46 in, on the 30th, at 10 P. M.
 { Minimum, 29.14 " " 23d, at 3 P. M.
 Mean of the Month, 29.796 inches.

MONTHLY METEOROLOGICAL REGISTER, AT H. M. MAGNETICAL OBSERVATORY TORONTO, O. W. - DECEMBER, 1850.
 Latitude 43°. 39'. 4 N. Longitude, 79°. 51'. 6 W. Elevation above Lake Ontario, 105 feet - For the British American Medical and Physical Journal.

Barometer at Temp. of 32°		Temperature of the Air.		Tension of Vapour.		Humidity of the Air.		Wind.		Ins. of Rain.		Weather.		
H.	P.M.	H.	P.M.	H.	P.M.	H.	P.M.	H.	P.M.	10 P.M.	Dir.	Force.	Dir.	Force.
1	59.646	59.610	29.540	29.646	32.2	32.0	0.139	0.166	0.153	87	77	92	85	1.140
2	59.297	59.136	29.499	29.401	32.4	31.6	0.295	0.204	0.265	95	74	83	80	0.050
3	59.273	59.186	29.788	29.781	31.6	32.1	0.165	0.174	0.163	73	82	88	81	
4	59.266	59.271	29.876	29.874	32.0	32.0	0.169	0.183	0.148	93	81	84	82	
5	59.299	59.829	29.724	29.812	32.0	31.8	0.180	0.166	0.182	80	97	97	79	
6	59.497	59.100	30.483	30.348	25.0	23.0	0.130	0.084	0.107	89	93	75	86	
7	59.469	59.378	29.433	29.457	26.0	28.2	0.133	0.130	0.120	73	85	89	84	
8	59.683	59.650	29.650	29.650	15.4	18.4	0.106	0.089	0.084	77	76	81	80	
9	59.476	59.613	29.612	29.571	22.8	21.5	0.117	0.124	0.127	88	80	80	82	
10	59.292	59.672	29.027	29.766	27.4	22.9	0.098	0.129	0.098	85	78	70	70	
11	59.298	59.633	29.027	29.012	5.8	18.8	0.053	0.069	0.052	86	85	93	82	
12	59.293	59.741	29.651	29.738	13.0	28.2	0.063	0.130	0.124	76	78	77	80	
13	59.292	59.653	29.811	29.579	32.0	31.4	0.154	0.117	0.147	82	78	85	88	
14	59.298	59.780	29.851	29.814	16.8	18.0	0.081	0.075	0.081	89	71	81	82	
15	59.280	59.860	29.864	29.914	20.800	20.5	0.077	0.085	0.080	86	86	86	82	
16	59.278	59.882	29.865	29.873	18.4	16.5	0.081	0.081	0.081	84	86	86	86	
17	59.290	59.829	29.618	29.617	14.0	23.9	0.081	0.116	0.072	83	87	97	87	
18	59.290	59.813	29.650	29.389	27.0	31.4	0.146	0.146	0.132	88	82	86	82	
19	59.298	59.375	29.764	29.464	16.8	13.6	0.077	0.063	0.042	70	74	62	75	
20	59.290	59.003	30.052	29.917	4.6	18.3	0.028	0.039	0.073	72	86	80	83	
21	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
22	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
23	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
24	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
25	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
26	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
27	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
28	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
29	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
30	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
31	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
32	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
33	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
34	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
35	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
36	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
37	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
38	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
39	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
40	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
41	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
42	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
43	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
44	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
45	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
46	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
47	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
48	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
49	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
50	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
51	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
52	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
53	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
54	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
55	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
56	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
57	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
58	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
59	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
60	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
61	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
62	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
63	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
64	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
65	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
66	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
67	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
68	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
69	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
70	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
71	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
72	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
73	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
74	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
75	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
76	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
77	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
78	59.290	59.316	29.465	29.387	23.2	30.0	0.153	0.140	0.133	89	82	93	85	
79	59.290	59.316	29.465	29.										