

red particles of the blood, and though no colouring matter hitherto employed in artificial injections has been able, on account of its grossness, to penetrate the dental vessels, yet disease sometimes accomplishes what art is incapable of effecting. In jaundice, the bony substance of the teeth is occasionally tinged with a bright yellow colour; and in persons who have perished by a violent death, in whom the circulation has been suddenly arrested, it is of a deep red colour. Moreover, when the dentist files a tooth, no pain is produced until the file reaches the bony substance; but the instant it begins to act upon this part of the tooth, the sensation becomes sufficiently acute.

These facts demonstrate that the bony matter of the tooth, though modified to fit the instrument for its office, is still a true and proper organized substance.

Each tooth is divided into body, neck, and root. The body is that part of the tooth which is above the gum, the root that part which is below the gum, and the neck that part where the body and the root unite. The body, the essential part, is the tooth properly so called—the part which performs the whole work for which the instrument is constructed, to the production an support of which all the other instruments are subservient.

When a vertical section is made in the tooth, it is found to contain a cavity of considerable size, termed the dental cavity, which, large in the body of the tooth, gradually diminishes through the whole length of the root. The dental cavity is lined throughout with a thin, delicate, and vascular membrane, continued from that which lines the jaw. It contains a pulpy substance. This pulp, highly vascular and exquisitely sensible, is composed almost entirely of blood-vessels and nerves; and is the source whence the bony part of the tooth derives its vitality, sensibility, and nutriment. The blood-vessels and nerves that compose the pulp enter the dental cavity through a minute hole at the extremity of the root. The membrane which lines the dental cavity is likewise continued over the external surface of the root, so as to afford it a complete envelope.

Provision having been thus made for the organization of the tooth, for the support of its vitality, and for its connexion with the living system, over all that portion of it which is above the gum, and which constitutes the essential part of the instrument, there is poured a dense, hard inorganic, insensible, all but indestructible substance, termed enamel; a substance inorganic, composed of earthy salts, principally phosphate of lime, and a slight trace of animal matter: a substance of exceeding density, of a milky-white colour, semi-transparent, with consisting of minute fibrous crystals. The manner in which this organic matter is arranged about the body of the tooth is worthy of notice. The crystals are disposed in radii springing from the centre of the tooth, so that the extremities of the crystals form the external surface of the tooth, while the internal extremities are in contact with the bony substance. By this arrangement a twofold advantage is obtained; the enamel is less apt to be worn down by friction, and is less liable to accidental fracture.

In this manner an instrument is constructed possessing the requisite hardness, durability, and insensibility; yet organized, alive—as truly an integral portion of the living system as the eye or the heart.

No less care is indicated in fixing than in constructing the instrument. It is held in its situation not by one expedient, but by many.

1. All along the margin of both jaws is placed a bony arch, pierced with holes, which constitute the sockets, called alveoli, for the tooth. Each socket or alveolus is distinct, there being one alveolus for each tooth. The adaption of the root to the alveolus is so exact, and the adhesion so close, that each root is fixed in its alveolus just as a nail is fixed when driven into a board.

2. The roots of the teeth, when there are more than one, deviate from a straight line; and this deviation from parallelism, on an obvious mechanical principle, adds to the firmness of the connexion.

3. Adherent by one edge to the bony arch of the jaw, and by the other to the neck of the tooth, is a peculiar substance, dense, firm, membranous, called the gum, less hard than cartilage, but much harder than skin or common membrane; abounding with blood-vessels, yet but little sensible, constructed for the express purpose of assisting to fix the teeth in their situation.

4. The dense and firm membrane covering the bony arch of the jaw is continued into each alveolus which it lines; from the bottom of the alveolus this membrane is reflected over the root of the tooth, which it completely invests as far as the neck, where it terminates, and where the enamel begins: this membrane, like a tense and strong band; powerfully assists in fixing the tooth.

5. Lastly, the vessels and nerves, which enter at the extremity of the root, like so many strings, assist in tying it down; hence, when in the progress of age all the other fastenings are removed, these strings hold the teeth so firmly to the bottom of the socket, that their removal always requires considerable force.

But a dense substance like enamel acting with force against so hard a substance as bone, would produce a jar which, propagated along the bones of the face and skull

to the brain, would severely injure that tender organ, and effectually interfere with the comfort of eating.

This evil is guarded against,

1. By the structure of the alveoli, which are composed not of dense and compact, but of loose and spongy bone. This cancellated arrangement of the osseous fibres is admirably adapted for absorbing vibrations and preventing their propagation.

2. By the membrane which lines the socket.

3. By the membrane which covers the root of the tooth; and,

4. By the gum.

These membranous substances, even more than the cancellated structure of the alveoli, absorb vibrations, and counteract the communication of a shock to the bones of the face and head when the teeth act forcibly on hard materials: so many and such nice adjustments go to secure enjoyment, say, to prevent exquisite pain, in the simple operation of bringing the teeth into contact in the act of eating.—*Philosophy of Health.*

## THE PEARL.

HALIFAX, DECEMBER 23, 1837.

From Montreal Papers.

"The tide of civil war is now rolling apace in this misguided and unhappy Province of the British Empire; and were it not for the bravery of Her Majesty's troops, and the skill and prudence of their officers, there is no saying to what extremities the loyal inhabitants of the Colony might be reduced."—*Gaz.*

ARRESTS FOR HIGH TREASON.—The following are the names of all the prisoners now in gaol in this city on charge of high treason. The thirty-two last named are the prisoners brought in to-day, seven of whom were taken between Longueuil and Chambly, and the others of St. Charles:—

André Ouimet,  
Amable Simard,  
George De Boucherville,  
Chas. A. Leblanc,  
Jean Dubuc,  
François Tavernier,  
Jn Frans Bossu Lionais,  
Louis Michel Viger,  
Narcisse Lamotte,  
André Lacroix,  
A. E. Brady,  
Joseph Baugrette,  
Dominique Lavallée,  
Louis Monjeau, junr,  
Louis Monjeau, sr,  
Joseph Ménard,  
Joseph Pepin,  
Augustus Blanchette,  
Ambroise Choquette,  
Antoine Forte,  
François Hébert  
Toussaint Bonvouloir,  
Pierre L'Heureux.

Felix Beaulac,  
Pierre Legros,  
Narcisse Sabourier,  
Joseph Taille,  
Eusebe Durocher,  
Jacob Veaucry,  
Jean Bte. Leduc,  
Oliver Lusster,  
Joseph Daigneau,  
Gédéon Plante,  
Joseph Bellefleur,  
Charles Martiu  
Pierre Lussier,  
François Larose,  
François Bachant,  
François Lemire,  
Toussaint Lachapelle,  
Joseph Fortin,  
Constant Anthier,  
Hubert Raineau,  
Louis Chicoa Davert,  
Antoine Bursaloue,

In addition to the above, C. S. Cherrier, Esq. Mr. P. P. and Toussain Pelletier, Esq. Advocate, were yesterday committed to gaol, on charges of high treason.—*Courier.*

MARTIAL LAW.—Montreal, Dec. 2d.—We believe there is no question that the Magistrates of this city and neighbourhood, last Monday, resolved that many parts of this District, were in such a disturbed and rebellious state, as to demand the proclamation of Martial Law as the only means of accomplishing the more speedy punishment of the guilty and preventing the spread of the revolution, which has begun; and that a communication to that effect was made to the Executive Government of the Province.—*Gazette.*

MURDER OF MR. CHATROND.—On Thursday last, a person named Chatrond, a respectable mason, residing at St. John's, and a loyal volunteer, left his house to collect a debt due to him, a few miles out of the village, by one Roy, and on his return was arrested by five men with loaded muskets, who set him up against a tree and fired at him. One ball pierced his heart, and several others showed the deadly aim which his savage murderers took. We have conversed with a gentleman who saw the dead body. In consequence of Chatrond's not returning to St. John's, fears were entertained that he had been taken prisoner by some of the rebels, who have scouts over all the neighbourhood, and Mr. Macrae, with twelve of the Dorchester Volunteers, set out in search of him, when they learned the particulars of his untimely fate.—*Id.*

From Quebec Papers.

QUEBEC VOLUNTEERS.—We have understood that the number of volunteers to be armed to perform military duty at Quebec, was limited to a thousand. The number,

we believe, was completed before the close of last week, and most of the men sworn in. They are to serve under the regulations of the army, with the exception as to corporal punishment, provided by the Militia law, to the 1st May next, unless sooner discharged by the Governor in Chief.

Several of the companies have been drilling and some have got their arms. The zeal with which the men have entered the service, ensures a proper spirit of discipline among them, and a rapid progress in their exercises. We are confident that several thousand men could be raised in Quebec, if necessary, in a few days, on the same terms.—*Gazette.*

The Clerk of the House of Assembly has, we understand, receive directions to prepare to surrender the Parliament House for the use of Troops, but the building will only be used as the last resource.—*Mercury.*

It is stated in private letters that Roaville was burnt by the rebels themselves, in revenge for the shelter it had afforded to Colonel Wetherall's troops.

The *Populaire*, of Friday, states, that Lt. Wier was killed by the rebels, but that it was on his attempting to escape. It also asserts, that the death of Mr. Ovide Perreault is certain. Capt. Markham is reported as likely soon to recover from his severe wounds.

The *Ami du Peuple*, of Saturday evening says, that it had been raining at Montreal for several days and the roads nearly impassible.—*Gazette of the 4th.*

In several of the Eastern Townships Public Meetings of the inhabitants have been held, to avow their adherence to Her Majesty's Government.

MILITARY MOVEMENTS.—The Fredericton Sentinel of the 11th says:—A company of the 43rd Regt forming the first detachment, set out this morning on their route for Canada, under the command of Lt. Col. Booth. They were on sleds containing eight men each, exclusive of the driver; and went off in high spirits, amid the cheers of those they left behind them.

The *Gazette* says:—Another company followed their companions in arms yesterday morning, under the command of Captain Ferguson; and we understand that the whole of the remaining companies will be on their march by Saturday next. We need only add, that the departure of this gallant corps is universally regretted throughout the Province.

"It is tolerably clear that the Rebels have with them some persons having more knowledge of the system of desultory warfare suited to their means than simple habitants, or in fact those who have not been engaged in active warfare can be supposed to have. Whilst the situation of the rebels, themselves, without artillery or stores to encumber their march, having a perfect knowledge of the country, and with the best information of the movements of the Army, enables such leaders to direct their march with every advantage against the Royal Troops; whose commanders therefore cannot advance with too much caution or guard their cantonments with too much vigilance, to guard against a surprise from their undisciplined but quick moving enemies."—*Mercury.*

THE SOUTH SHORE.—We hear this morning that orders have been received, in the Parishes on the South Shore of the St. Lawrence, from the rebel leaders, to remain quiet at present.

THE MONTREAL PRESS.—We have once or twice alluded to the ferocious and impolitic tone, assumed by some of the Montreal Papers, and which, while it was well calculated to drive the whole French Population to still more desperate measures, could not fail at the same time seriously to weaken the influence of the Local Government. We find that, besides the Montreal Courier, the Quebec Mercury and Gazette, and many of the American Papers, some of the Editors in the Upper Province coincide in this opinion.—*Novascotian.*

Last evening Mr. Burke delivered a very pleasing introductory lecture on the science of Phrenology. After which he phrenologically examined the heads of two gentlemen present. From the exhibition of last night we have formed a high estimate of Mr. Burke as a graceful and perspicuous Lecturer.

The first number of THE SENTINEL published at Fredericton, N. B. has been received. In appearance it is neat while the matter is excellent. We hope that Mr. Ward will meet with abundant success.

The New Brunswick Legislature has been summoned to meet for the dispatch of business, on the 28th of this month.