

imals and vegetables. It has always attracted a considerable share of attention, and yet there is none which has at all times abounded in so much extravagant theory. Even at the present time there is no branch of knowledge more imperfect, nor any which, among a great though slowly accumulated mass of curious and important truths, still retains so large a proportion of what is vague and erroneous. The various departments of the Science have hitherto been considered in a manner too unconnected and irregular, and have been too little attended to and cultivated by persons capable of devoting an undivided attention to their investigation, and of studying all the functions of life in their actual connection with each other. It is unfortunate, also, that physiology has been regarded as the peculiar province of persons connected with the profession of medicine, for the more able and intelligent individuals of this class do not always cherish a partiality for physiological enquiries; or if they do possess any taste for such pursuits, they are usually prevented from prosecuting them with success. Through the influence of mechanics' institutes, it is being most severely handled for its inflexibility in not suiting itself to the present state of juvenile mental culture. The teachers of youth of all ages, the vast phenomena exhibited by organized beings, anatomists, physicians, metaphysicians, chemists, opticians, and mechanical philosophers, have all found ample field for occasional investigation; each selected for separate speculation or inquiry, those subjects which are most conformable to their habitual studies or occupations, to their talents and industry; and it is to them that physiology is indebted for a large portion of the established truth of which it has to boast. But at the same time we are obliged to impute to the partial views of these very men the greater portion of the error with which it abounds. It is a fact which has been long known, that every thing which lives, whether animal or vegetable, requires for the continuance of life, a constant supply of fresh air, or real oxygen, in the human body, from the first to the last moment of its existence. We remark that a certain quantity of air is alternately rushing into and out of the mouth and nostrils; the chest or thorax is so constructed that merely from the elasticity of its sides, and the pressure of the surrounding parts upon them, it has a tendency to assume a certain permanent capacity or dilatation. Accordingly after death, when there no longer exists any counteracting cause, this is the capacity which it assumes and retains; it may be called the natural state of the thorax. In the living body, however, it is found that by the action of the surrounding muscles a further enlargement of the chest, beyond its natural state, may be produced as soon as this dilatation commences. It is obvious that a sort of vacuum must be formed between the side of the thorax and the lungs; a current of air therefore immediately flows through the wind pipe into the air cells of the lungs, and gradually distends these organs, in proportion as the cavity containing them is increased. This denotes what is called inspiration. The quantity of air which is inhaled in any single inspiration, consists merely of a gentle enlargement, produced by a partial contraction of the diaphragm, and which may be termed an ordinary inspiration. The quantity of air which rushes into the lungs during any inspiration of this kind, differs materially in persons, according to the size of the chest, or the extent to which the diaphragm contracts in the inspiration of each. When the diminution commences, the lungs are compressed, and the air being thus forced out of the cells, escapes by the trachea and mouth. This constitutes expiration. These two processes of inspiration and expiration generally alternate with each other, while the body is at rest, about 20 times in a minute. It has long been ascertained, however, that the air which is emitted by expiration does not possess the same properties as that which has been inspired. That the air which has been breathed is loaded with moisture, seems at all times to have been generally known. It was demonstrated during the last century by Dr. Black, that it was combined with much more carbonic acid, and Dr. Priestley proved in 1773 that it contained much less oxygen than the air inhaled. Air examined after respiration is found to differ from the same air after it is breathed, in having lost a portion of its oxygen, and gained an equal portion of carbonic acid, in being loaded with moisture and watery vapour. This additional carbonic acid then is either given out directly by the exhalant vessels of the lungs, or it is actually formed within the air cells. Now it is not directly emitted from the vessels, for in that case it ought to be discovered in the air expired, whatever the composition of the air inspired may have been. But it is not so; for no carbonic acid is exhaled when hydrogen is breathed; it must therefore be formed within the cells. If so, the oxygen entering into its composition must be derived from the air inhaled, for it is not generated unless the air contains oxygen, and the quantity of oxygen which is lost by the inspired air is exactly equal to that of the carbonic acid emitted. On the other hand the carbon with which the oxygen combines must be supplied by the lungs, and physiology does not permit us to suppose that this supply is accomplished in any other way than by an exhalant secretion from the branches of the pulmonary arteries opening on the surface of the air cells. In what state the carbon is secreted, whether as carbon, or in combination with other substances, is yet uncertain. It has been shown that about 92,150 cubic inches of carbonic acid has been formed by the direct combination of its constituent principles within the air cell of the lungs in the

course of 24 hours. It follows that as much latent heat is daily set free within these organs as would melt 201 ounces of ice. With regard to the water which is found dissolved in the expired air, we may observe that we cannot regard it as formed by the union of the oxygen inhaled with hydrogen present in the air cells, for all the oxygen which disappears is employed in forming the carbonic acid. In consistency with physiological principles, therefore, we must suppose it is either poured out on the surface of the cells either in a state of pure water, or holding other substances in solution by an exhalant secretion from the vessels of the lungs. As we stated before, these two processes of inspiration and expiration generally alternate with each other, while the body is at rest, about twenty times in a minute. If, therefore, we adopt 40 cubic inches as the average bulk of air inhaled and exhaled, it will follow that a full grown man respires 48,000 cubic inches in an hour, or 1,152,000 cubic inches in the course of the day, a quantity equal to about 79 hogsheads.

It appears to have been the general opinion that a given quantity of atmospheric air, in passing once through the lungs, lost about 1-68th part of its bulk of nitrogen, about 1-1000th of oxygen, and gained nearly 1-13th of carbonic acid; 100 cubic inches for example losing 147 cubic inches of nitrogen, and 9,117 cubic inches of oxygen, while they acquired 7,647 cubic inches of carbonic acid by a single respiration. This conclusion was deduced chiefly from experiments performed by Mr. Davy, in which he found that when he applied his mouth to a tube connected with a mercurial air holder, containing atmospheric air, and made a single inspiration and expiration from and into this vessel, as much in the manner of ordinary breathing as possible, the contents of the air holder were diminished in bulk, and contained less nitrogen and oxygen, and more of carbonic acid, nearly in the proportions just stated. Two articles on this subject, the productions of Sequin and Lavoisier, were read to the Academy of Sciences of Paris in 1789 and 1790, and Laplace has preserved the results of these experiments in prosecution of the same inquiry with which Lavoisier was engaged when he was dragged to the guillotine—experiments which he himself would have committed to the world in detail, had not the short respite of a few days which he requested for that purpose, been with such unprecedented barbarity denied. That one of those illustrious philosophers, who adorned the last century, should have fallen a victim to those terrible passions which too often convulse Europe, is surely to be regretted.

To the Editor of the Gleaner.

Sir,—Filius having made a vile and most uncalled for attack upon you, instead of replying to me, of course there is nothing left for me but to retire. I think you will now acknowledge, Mr. Editor, that you would have fared as well, if not better, had you published my first letter without hesitation.

A SON OF TEMPERANCE.  
Miramichi, August 30, 1850.

#### PARISH OF NELSON.

To the Editor of the Gleaner.

Sir,—Some few weeks since, an article appeared in the Gleaner over the signature of Consistency, stating some "things he liked to see." In your next I stated some things "I did not like to see," without any reference to Consistency's article whatever. I see by your last paper that he has identified himself with the misdemeanors, &c., therein contained, and comes out in high dudgeon against Hazeltwig. Surely, Mr. Editor, if I have made a "slandrous attack" upon an "imaginary individual," where was the necessity for Consistency's ire; but he has truly verified the old proverb, "the cap fitted him, and he put it on." I would not, however, notice his last effort, if it were not to correct an error I had made in the previous communication, namely, Consistency denies he was in that "oblivious state" referred to during three days, he having the Poll Book in his possession only two days. I stand corrected, and make the *amende honorable*, namely, that Consistency was only two days drunk while the Poll Book was in his possession. I trust the correction will be satisfactory. But I am astonished at his effrontery to deny the manner in which he conducted the election as a returning officer, as the matter is too notorious to need either note or comment from me. He is exceedingly wrathful at my noticing the trouble of Overseers of Poor, and finds fault with my not stating where the trouble lay. Verily, this is a piece of the most unblushing effrontery I ever heard. Let him recollect the scene in a Magistrate's Court not long since, with its concomitant circumstances, and *blush into silence*. But I "might have held my tongue about the Poll Book, as I was not a candidate, though I had the presumptuous expectation of being nominated." Really, Mr. Editor, I am a very modest man, and never aspired to such high honors. The highest flight of my ambition has not even led me to seek for the situation of Magistrate, nor to hire an old man to go round the parish through snow-drifts with a petition for signature, to be presented at Head Quarters, in order that my name might be smuggled into the Commission of the Peace. The man who has committed the awful crime of putting sand on the road, and hauling away rubbish from his house, must answer for himself; I know nothing about him. I would advise Consistency to look sharply after such flagrant outrages, and not allow them to escape condign punishment. I now, Mr. Editor, take my leave of Consistency, and will not descend to notice

him again, he being one of those vapid cock-combs that is found in every community. By a consistent career he has long since found his level, and there I leave him.

Yours, &c.,

HAZELTWIG.

Nelson, August 28, 1850.

Mr. Pierce,

Sir,—Although aware that the existing controversy between *Filius* and *A Son of Temperance* must be irksome and unprofitable to your general readers, I claim their indulgence while in the character of Chairman of the Northumberland Division, I do an act of justice to *Filius*, and correct some mis-statements of his opponent.

In language not necessary to be repeated, your correspondent denies that *Filius* was appointed to draw up the Pic Nic narrative; and here he is mistaken.

On the Friday evening following the Pic Nic, it was moved in Division that he should be a Committee for that purpose. This he declined until it was ascertained what notice would be taken of it in your paper; but stated that in case you did not give a detailed account, he was willing to undertake the task. On the following Friday it was again moved that he be requested to prepare the narrative, when he stated that in consequence of the previous motion, he had written an account, which he was ready to submit.

The narrative as since published, was then read, and upon motion it was unanimously resolved that it should be approved, and the writer requested to publish it.

Thus, then, *Filius* was appointed, and the article, so far at least as its truthfulness is concerned, adopted by the Division; and thus far that body is prepared to assume the responsibility of supporting it.

Your correspondent next assails the published Resolution of the Division, as the production of *Filius*. That Resolution was laid before the Chair in the handwriting of, and signed by, the mover, Mr. Benjamin Miller, and he assures me that up to the moment of its being moved, *Filius* knew nothing of it. It was, however, adopted by the Division without a dissenting voice. Mr. Miller is not the person to be made a tool of, and his name will be a sufficient guarantee to the public.

The assertion of your correspondent that "three respectable Divisions have allowed themselves to be wheedled and cajoled to blindfold the public," may (with his expressions of sorrow) be safely permitted to go for what they are worth. These Divisions could not be cajoled; nor can they be injured by the manifested hostility or pretended friendship of an anonymous writer.

He advises us to "purge our ranks of Black Sheep, &c." That there are among us some who violate their obligations, is more than suggested by his letter; for, independent of total abstinence, there are three important obligations, and "Truth in its strictest sense," is one of the things weekly enjoined upon each member before leaving the Division Room.

That in the absence of strict proof many offenders must escape punishment, is the common misfortune of all societies and countries; and so long as your correspondent remains incog, his punishment must be left to the cool reflections of his better judgment.

I am, Sir,

Your obedient Servant,

J. M. JOHNSON, Jr.,

W. P. of Northumberland Division.  
Chatham, 31st August, 1850.

### Editor's Department.

#### MIRAMICHI:

CHATHAM, MONDAY, SEPTEMBER 2, 1850.

#### EUROPEAN NEWS.

The Mail by the Niagara came to hand on Friday, and put us in possession of papers to the 17th August. The intelligence thus obtained is not important. A number of extracts will be found under the proper head.

Parliament was prorogued by the Queen in person, on the 15th August, after sitting from the 31st January last. The following Speech was delivered by Her Majesty on the occasion:—

"My Lords and Gentlemen:

"I have the satisfaction of being able to release you from the duties of a laborious session. The assiduity and care with which you have applied yourselves to the business which required your attention, merit my cordial approbation.

"The act for the better Government of my Australian Colonies will, I trust, improve the condition of those rising communities. It will always be gratifying to me to be able to extend the advantages of representative institutions, which form the glory and happiness of my people, to colonies inhabited by men who are capable of exercising, with benefit to themselves, the privileges of freedom.

"It has afforded me great satisfaction to give my assent to the act which you have passed for the improvement of the merchant naval service of this country. It is, I trust, calculated to promote the welfare of every class connected with this essential branch of the national interest.

"The Act for the gradual discontinuance of Intermittents within the Limits of the metropolis is in conformity with those enlighten-

ed views which have for their object the improvement of the public health. I shall watch with interest the progress of measures relating to this important subject.

"I have given my cordial assent to the act for the extension of the Elective Franchise in Ireland. I look to the most beneficial consequences from a measure which has been framed with a view to give my people in Ireland a fair participation in the benefits of our representative system.

"I have observed with the greatest interest and satisfaction, the measures which have been adopted with a view to the improvement of the administration of justice in various departments, and I confidently anticipate they will be productive of much public convenience and advantage.

"Gentlemen of the House of Commons,

"The improvement of the Revenue, and the large reductions which have been made in various branches of expenditure, have tended to give our financial condition stability and security. I am happy to find that you have been enabled to relieve my subjects from some of the burdens of taxation, without impairing the sufficiency of our resources to meet the charges imposed upon them.

"My Lords and Gentlemen,

"I am encouraged to hope that the treaty between Germany and Denmark, which has been concluded at Berlin under my mediation, my lead, at no distant period to the restoration of peace in the North of Europe. No endeavor shall wanting on my part to secure the attainment of this great blessing.

"I continue to maintain the most friendly relations with foreign powers, and I trust that nothing may occur to disturb the general peace.

"I have reason to be thankful for the loyalty and attachment of my people; and while I am studious to preserve and improve our institutions, I rely upon the goodness of Almighty God to favor my efforts, and to guide the destinies of this nation."

WESTMORELAND.—The Amaranth furnishes us with the following paragraph. We wonder that a man like Mr. Crane, who is correctly reported to be far-seeing, possessed of a goodly share of common sense, and knowing "a thing or two," would commit such an egregious blunder.

"Old Foggyism.—We really believe this Province beats Ireland for blunders. One of the last is this: the Hon. William Crane offered himself as a candidate for the suffrages of the people of Westmoreland, at the late election, without having previously tendered his resignation as a member of the Legislative Council. Of course he was ineligible and cannot take his seat. A Peer is ineligible to a seat in the House of Commons. Besides, the question came before the House of Assembly, and was decided negatively, in 1847, when the late Hon. Hugh Johnston was returned for Queen's. If Mr. C. did not know this, he is highly culpable for his ignorance; if he did know it, he is still more culpable, as he has disfranchised his county for nearly or quite one Session, as the Speaker cannot issue his warrant for a new Election until the House shall have been in Session fifteen days."

SPIRIT OF THE COLONIAL PRESS.—The following paragraphs taken from late Colonial papers, shew the spirit that is abroad in the Provinces. The Halifax Sun in speaking of the admission of California into the Union, goes on to say:

"We have just now, no direct or immediate interest in any adjustment of the political balances, upon which, possibly, the prolonged existence of the Union so especially depends. But, severed though we be by Geographical Lines of man's arbitrary demarkation, from the people of the Great Republic, and owing allegiance to another political head; we cannot but feel that in our sympathies, and we might add, great interests, we are one with them and they with us. This identity is growing daily more unmistakably palpable, and the man who undertakes, in 1850, to gainsay the assertion that God and Nature have intended the inhabitants of the Great Republic as it is, and of British North American Colonies as they are, in the march of irrevocable progress, to amalgamate and form one People; can be but blind to the real nature and necessary result of the stirring movements of the day; and deaf to the decided tone of public opinion on both sides of the Line."

From the Halifax British North American.  
"We agree with all that has been said as to the moral, commercial and political importance of the late assemblage—nor would we disguise from ourselves, nor from the British Cabinet, the fact, that the meeting in question, and other meetings of the same sort, must follow it, will inevitably have a tendency to weaken our attachment to the parent State, and gradually link us in interest with our brethren over the Border.

"We believe there is not an inhabitant of this colony, whose heart does not burn with indignation at the cold, indifferent, stolid heartlessness—may stupid reception, which the reiterated addresses of the Colonial Legislatures to the Mother Country for aid to lay a Railway, have met with at the hands of the gentlemen who pull the strings of Colonial Government in Downing Street. We entreat them to have a care of their rashness and folly ere it be too late.