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# EDUCATIONALIST.

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1862

VOLUME II.

BRIGHTON, CANADA WEST, APRIL 1, 1862.

NUMBER 14

## Poetry.

### WELCOME ARE THE BIRDS AGAIN!

BY GEO. A. HAMILTON.

Hark! I hear the merry ringing  
Of a joyful Blue-bird singing!  
This betokens spring returning,  
And we know the birds are coming;  
Welcome every brightening hue  
That is decking earth anew,—  
Most, among the gladning train,  
Welcome are the birds again!

Welcome sunshine, bright and warm,  
Following the wintry storm,—  
Winter has its pleasures fair,—  
Pleasing rides and bracing air;  
But we see them pass away,  
Nor would wish a longer stay,—  
Now a song comes o'er the plain,  
Welcome are the birds again!

Welcome all the festive hours,  
And the genial April showers,—  
Welcome murmurs of the rill,  
Blooming Rose or Daffodil;  
Welcome humble Violet, too,  
Sparkling in the vernal dew,—  
But while all these beauties reign,  
Welcome are the birds again!

Yes, we welcome all the brightness,  
And the joyful, spring-like lightness,—  
Welcome March with brightening ray,  
Smiling April, lovely May,  
All the swelling buds and leaves,  
All the garlands Nature weaves,—  
Most of all the joyful train,  
Welcome are the birds again!

Yes, the bright and genial spring  
Pure and sweet delights shall bring,—  
Bring a thousand precious joys,—  
Bring ten thousand blissing toys;  
Now each little brook is swelling,  
And each sparkling fountain weeping,—  
Coming with the cheerful train,  
Welcome are the birds again.

While we cherish every gem,  
Every spring-like diadem,  
While we see the brightness now  
Glowing on the vernal brow,  
While we see that God will bless  
Nature with his bright impress,  
Let our song's most grateful strains  
Welcome here the birds again!

### HEAT, WORKING AND SUPER-HEATING STEAM.

Philosophers have been divided in opinion respecting the nature of heat. One class have supposed it to be a property of matter, like gravity, and that it consisted in the peculiar vibration of its particles. The other class believed it to be a distinct substance—a peculiar subtle fluid pervading bodies. The latter hypothesis was supposed to have been proved by experiments made about sixty years ago with colored glasses by Sir John Herschel and others, and it had been taught as an es-

tablished scientific doctrine. Recently the former hypothesis modified, has prevailed under the name of "The Mechanical Theory of Heat." New and important discoveries have been made respecting the modes of measuring the effects of heat and unit of energy for it has been adopted and is called "Joule's Equivalent." It was discovered by Mr. Joule of Manchester, England, while making experiments with friction in heating water, oil, &c., that 772 lbs. lifted one foot, produced that quantity of frictional heat which elevated 1 lb. of water one degree. A pound of water raised one degree in temperature is therefore a unit of heat, and is equal in mechanical energy to 772 lbs. lifted one foot.

Heat and mechanical energy are mutually convertible, and the most perfect example which we have of this upon an extended scale, is the steam engine. The work done by a steam engine is just in proportion to the heat developed and usefully applied. In a late paper upon the theory of heat, read by Prof. Macquorn Rankine, F. R. S., before the Glasgow Philosophical Society, he directs attention to the discovery of Joule and Thomson, that when gases (such as steam) expand without performing work, scarcely any cooling effect is produced. It is therefore possible that steam may be used expansively without doing its proper quantity of work, which is equivalent to so much heat wasted. Some useful facts in this relationship have lately been published in the *Engineer*, taken from the annual report of Mr. L. E. Fletcher, chief engineer of the Manchester Association for the Prevention of Steam Boiler Explosions. He directs the attention of those who use condensing engines to the fact that these motors generally do not execute work in proportion to the quantity of steam delivered from the boilers. The loss, as measured frequently, is about thirty-three per cent. This is due to the alternating connection of the cylinder, each stroke of the engine, with the boiler at a high temperature, and the condenser at a low one—about 200° Fah. In such engines there is an alternate action of condensation and re-evaporation in the internal surfaces of

the cylinder, and it is thus a considerable percentage of steam passes from the boiler to the condenser through the engine without doing useful work. This action is so silent and subtle that it had escaped detection for many years. Such a loss is of most consequence in steamships which have to carry their own fuel. It amounts to about three hundred tons of coal on one of the larger class of steamers in a voyage across the Atlantic ocean. "The remedy for this loss," says Mr. Fletcher, "is to adopt the steam jacket for the cylinder, or superheat the steam. There is nothing new, or untried, or dangerous in either of these." Some have held up superheated steam as a bugbear, and have asserted that it destroyed the interior surfaces of cylinders, cut the faces of valves, corroded the metal and prevented proper lubrication. Actual experience has proved these objections to be visionary. Mr. Fletcher says, on this head, "I find that when superheated steam has been fully tested, no difficulty is experienced in its use, and no alteration is required for old engines to which it may be applied beyond the introduction of a slightly better description of packing for the glands. The Peninsular and Oriental Steam Navigation Company have, in many of their engines, realized an economy of upwards of 30 per cent by the introduction of superheated steam," and a new steamer, lately built, of 2,600 tons Lurthen, with engines of 400 horse power, in which steam jackets, surface condensers, and superheated steam are applied, has realized, we are told, a saving of fifty per cent in fuel compared with a steamer of like tonnage and power without such appliances. These statements claim the attention of all steam engineers and steamship companies. It has been found most advantageous to superheat the steam to about 100° above that in the boiler, when no difficulty is experienced in lubricating valves, pistons and glands. Every new economical application of steam deserves to be generally known and carried into practice.

Men of some vocations are usually undersized. The most strapping fellows in the community are the school masters.

## THE EDUCATIONALIST

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THE EDUCATIONALIST  
APRIL 1, 1862.

### BOOK NOTICE.

The attention of our readers is directed to the notice of the New American Cyclopaedia in this issue. The work is having a large sale in Canada, and deserves a careful perusal.

APPOINTMENT.—We learn by the Newmarket News that "Dr. Bentley has been appointed and has accepted the office of Local Superintendent of Schools for Newmarket, in place of Mr. Thos. Nixon, resigned.

The next meeting of the Teachers' Association for the Townships of Brighton and Murray will be held in the Town Hall, Hilton, on Saturday, the 5th inst.

After one more issue, the *Educationalist* will be enlarged to twice its present size.

### TEACHERS' CONVENTION.

The Teachers' Convention for the East Riding of the County of Northumberland was held in Campbellford, on Friday and Saturday, 28th of Feb. and 1st of March. E. Scarlett, Esq., President, in the chair.

The attendance was very small, arising partly from the fact that an advertisement had appeared in the *Flag*, calling the meeting one week earlier, which many attended to, and partly from the state of the roads, which rendered travelling very difficult.

On the first day very little was done to promote the objects of the Association.—The Convention adjourned till the next day.

Second day.—Mr. Bell lectured on Grammar. The Convention joined in discussing the object for more than an hour; after which various appeals were made to those present with the view of increasing the attendance of teachers and the friends of education at the quarterly meetings of the Convention.

Mr. Scarlett addressed the meeting at considerable length on the duty of encouraging the circulation of the *Educationalist*, and to obtain subscribers for that useful periodical.

Moved by Mr. Scarlett, seconded by Mr. Brisbin, that the next meeting be held at Smith's Corners, in the Township of Murray, on the last Saturday in May. The subjects for Lectures, &c., to remain the same as they were for the Campbellford meeting. Mr. Pollock to read an essay.

Moved by Mr. Scarlett, seconded by Mr. Oliver, that Mr. Pollock be requested to write an article to be published in the *Educationalist*, urging upon the attention of teachers the importance of attending Conventions.

Moved by Mr. Scarlett, seconded by T. S. Gillen, that this Convention cannot separate without expressing their thanks to the people of Campbellford for their hospitality and attention during their stay in their flourishing village.—Carried with applause.

It is to be hoped that all Teachers in the Riding will consider it their duty to attend the meetings of the Convention, not only for their own improvement, but also to help in diffusing the right spirit amongst the community generally.

THOS. SCOTT GILLEN,  
Secretary.

### THE NEW AMERICAN CYCLOPEDIA

IS just the work for the person who aims at understanding what he reads, and who desires to possess a Library in the most convenient form of all human knowledge as it exists at the present moment. It is especially adapted to the wants of the Minister and School Teacher, who can never be at loss on any subject with the Cyclopaedia in his library. It embraces and popularizes every subject that can be thought of. In its successive volumes is contained an inexhaustible fund of accurate and practical information on Art and Science, in all their branches, including Mechanics, Mathematics, Astronomy, Philosophy, Chemistry and Physiology; on Agriculture, Commerce

and Manufactures; on Law, Medicine and Theology; on Biography and History, Geography and Ethnology; on Political Economy, the Trades, Inventions, Politics, the Things of Common Life, and General Literature.

The New American Cyclopaedia is edited by Gen. Ripley and Chas. A. Dana, aided by a numerous select corps of writers in all branches of Science, Art and Literature. It will be published by D. Appleton & Co. in 16 volumes, Royal Octavo, double columns, 14 vols. of which are now ready, and each successive volume will be issued every 3 to 4 months. Price per volume, Cloth, \$3.00; Library Style, Sheep, \$3.50; Half Morocco, \$4; Half Russia, \$4.60; Full Morocco Gilt or Full Russia, \$5.50.

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Caniston, March 18, 1861.

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Caniston, March 18, 1862.

### HEALTH AND BEAUTY.

It is well said, by one who had thoroughly studied the subject, that the highest ambition of an ancient Greek was to be healthy, beautiful and rich. We cannot help thinking that the old Athenians, in this respect, were wiser than ourselves. Much as we boast of our wonderful intelligence, we have not yet practically attained to a method of life so comprehensive as that pursued, not only by philosophers, but by the men of fashion about town in Africa and the Peloponnesus. They placed health first, and money-making last, while we invert this order. Yet they were Pagans, and we Christians.—Surely we should cry "shame" to ourselves.

In reality, the two principal objects sought by the ancient Greek, health and beauty, were but one and the same. For beauty cannot exist without health. The man who is constantly confined at the counting desk soon acquires an habitual stoop; the one who devotes his whole soul to money-making becomes wrinkled before his time. On the contrary, he who indulges in proper exercise and recreation, as, for example, a well-to-do farmer in healthy districts, carries an erect frame to the verge of seventy, and has a ruddy cheek even when an octogenarian.

## WORDS AND IDEAS.\*

BY G. L. DOUGHTY.

I have been trying to ascertain the cause of this painful, strained, and sometimes laughable effort to talk learnedly by using high-sounding words to express small ideas. It is said the ancient Spartans never considered themselves men until they could whip their mother. Young America never thinks himself a scholar until he can confound his parents with prodigious words. A mother says to her son: "John, if you don't stop spitting tobacco juice on the floor I will whip you!" The son replies: "Mother, why don't you talk properly? why did you not say, My son, if you do not cease ejecting the saliva of the Virginia weed upon the promenade, I will administer unto you a severe castigation?"

A wise divine has said: "Fine clothes do not make a man, but they help the looks of him amazingly after he is made." Words can not make ideas, but when nicely chosen and well fitted they give them a good appearance and increase their effect. But as we mistake clothes for men—feathers for birds—so bombastic phrases and high-flown language are often mistaken for scholarship. If a quack should say saccharine substance instead of sugar, or *agua pura* instead of pure water, there are many who would say, "That is a learned doctor—hear what wise words he uses!" Such learning is show without substance, "sounding brass and tinkling cymbal." This is encouraged by a very grave error in teaching. An overloaded stomach produces flatulency; when the food is not properly converted into elements of nutrition, there accumulates in and passes from the stomach a quantity of gas. So when the intellect is filled with indigestible matter, it gives off gas, words without ideas—blank cartridges. The boy just mentioned was a victim of mental dyspepsia.

The error in teaching is this: *tasking the memory with a mass of indigestible stuff, words, names, and rules not understood—and permitting pupils to study sciences beyond their age and capacity.* It is possible to pronounce words correctly and read fluently, and even recite (by tongue, not "by heart" or by head even) whole pages satisfactorily (to the teacher who reads the questions of the book), without grasping a single idea. It is quite common for pupils to commit every rule

in grammar to memory without being able to parse a single sentence. Boys spout forth whole pages of Clay and Webster who have a kind of *feeling* that they are declaiming something weighty, but really *know* but little more about it than the parrot that repeats, "Pretty Polly!" This, instead of making the mind a reservoir of ideas—a fountain of thought—converts it into a funnel for others' thought to pass through; however, this is better than nothing, because even a funnel will smell of the wine that has passed through it.

Ambitious parents wish to make their children men and women, in scientific attainments, before they cease to be boys and girls. Not only must the mind be stuffed with indigestible material (metaphorically speaking), but if too small it must be stretched. Instead of permitting the teacher to teach the young idea *how* to shoot, he is expected to teach it *when* to shoot, and to *make* it shoot even before there is an idea *to* shoot. An Irishman once took a board to an artist's studio and asked that his little boy's portrait be painted on it, full length, life size. The artist took the board, looked at it, and told the father it was too small for such a size picture, being barely large enough for the bust of the boy. "But," says Patrick, "faith, and can't you paint his legs hanging off the board?" Now for parents to demand that a child be made efficient in sciences beyond its capacity, is demanding what Patrick did—an utter impossibility.

Children trained by this practice of stuffing and stretching, when arrived at years of maturity often manifest but little interest in reading, because habituated to reading and reciting without comprehending and appreciating. I have in mind persons who were celebrated at school for good recitations, because apt at committing to memory words, rules, and names, and who were considered accomplished in the common branches of an English education, who can not now solve the most common problem in practical business without referring to the book and rule, and who do not show enough interest in reading to subscribe for a weekly newspaper.

This error in teaching is encouraged by erroneous views of mental science and what a German philosopher terms the "Laws of Exercise." In attempting to cultivate the powers of the understanding by simply memorizing words, *we proceed upon the theory that one mental faculty may be increased by exercising another;*

*when, in fact, each faculty to grow, must be exercised for itself alone.* No sane man would attempt to increase the muscular power of his left arm by holding it in a sling and exercising only his right arm; neither would he attempt to render the sense of sight more acute by exercising only the sense of touch. Yet teachers commit this blunder. They essay to develop that power of the intellect which recognizes *the thing itself* by coming into action or exercising only that power which recognizes *the name of the thing*, thus mistaking a knowledge of words or names for a knowledge of things. It is possible to know a dozen or more names for any one person, place, principle, or thing, without knowing any of the properties or peculiarities of that person, place, principle, or thing. An English writer tells us of a monk in a European convent who had studied the dead languages and knew the name of a horse in Greek, Latin, and Hebrew, and yet was unable to tell whether the horse ate meat or grass. We may study anatomy and be able to call the names of the 208 bones of the human body and yet be entirely ignorant of the shape and size of each of these bones. In this, it will be observed, we call into action our faculty of language alone, while that faculty which recognizes the *shape* of an object, and that which recognizes the *size* of an object, remain inactive. Thus we may worm through a whole circle of sciences exercising only a few faculties while a greater number remain comparatively dormant, and therefore undeveloped. And thus it is we substitute profuse verbiage for practical knowledge—confound words with ideas—mistake the name of an object for the object itself—and stuff one mental faculty while we starve a dozen.

ONE DROP AT A TIME.—Have you ever watched an icicle as it formed? You noticed how it froze one drop at a time until it was a foot long or more. If the water was clean the icicle remained clear, and sparkled brightly in the sun; but if the water was but slightly muddy, the icicle looked foul, and its beauty spoiled. Just so our characters are forming. One little thought or feeling at a time adds its influence. If each thought be pure and right, the soul will be lovely, and will sparkle with happiness; but if impure and wrong, there will be final deformity and wretchedness.

....."A laugh," says Charles Lamb, "is worth a hundred groans in any state of the market."

\* Extract from Lecture delivered at Shelby Co. (Ill.) Teachers' Association.

## THE SHADOWS WE CAST.

A child was playing with some miniature building materials, and as the mimic castle rose before his eyes in graceful proportion, a new pleasure swelled in his heart; he felt himself to be the creator of a "thing of beauty," and was conscious of a new born power. Arch, wall, buttress, gateway, drawbridge, lofty tower, and battlement, were all the work of his hands. He was in wonder at his own skill in thus creating from an unseemingly lot of toy materials, a structure of such rare design.

Silently he stood and gazed upon his castle, with something of the pride of an architect who sees, after months or years of skillfully applied labor, some grand conception in his art embodied in imperishable stone. It did not seem to him a toy, reaching only a few inches in height, and covering but a square foot of ground, but a real castle, lifting itself hundreds of feet upward toward the blue sky, and spreading wide upon the earth its ample foundations.

As the idea grew more and more perfect, the child's strange pleasure increased. Now he stood with folded arms, wrapped in the over-mastering illusion—now walked slowly around, viewing the structure on all sides, and noting every minute particular—and now sat down, and bent over it with the fondness of a mother bending over her child. Again he arose, and purposing to obtain another and more distant view of his work; but his foot struck against one of the buttresses, and instantly, with a crash, wall, tower, and battlement fell in hopeless ruin!

In the room with the boy, sat his father reading. The crash disturbed him, and he uttered a sharp, angry rebuke, glancing for a moment toward the startled child, and then turning his eyes to the attractive page before him, unconscious of the shadow he had cast upon the heart of the child. Tears came into those fair blue orbs, dancing in light a moment before. From the frowning face of his father, to which his glance was suddenly turned, the child looked back to the shapeless ruins of his castle. Is it any wonder that he bowed his face in silence upon them, and wetted them with tears?

For more than five minutes he sat as still as if sleeping; then, in a mournful kind of way, yet almost noiselessly he commenced restoring the box, from whence he had taken the many shaped pieces that, play-joined together, had grown into a noble building. After the box was filled

he replaced the cover, and laid it carefully upon a shelf in the closet.

Poor child! that shadow was a deep one, and long in passing away. His mother found him, half an hour afterwards, asleep on the floor, with cheeks flushed to an unusual brightness. She knew nothing of that troubled passage in his young life; and the father had forgotten, in the attraction of the book he was reading, the momentary annoyance expressed in words and tones with a power in them to shadow the heart of his child.

A young wife had busied herself for many days in preparing a pleasant surprise for her husband. The work was finished at last, and now she awaited his return with a heart full of warm emotions. A dressing gown and a pair of elegantly embroidered slippers, wrought by her own skillful fingers, were the gifts by which she meant to delight him. What a troop of pleasant fancies was in her heart!—How, almost impatiently, did she wait for the coming twilight, which was to be dawn, not approaching darkness to her.—At last she heard the step of her husband on the passage, and her pulse leaped with fluttering delight. Like a bird upon the wing, she flew down to meet him, impatient for the kiss that awaited her.

To men in the world of business, few days pass without their disappointments and perplexities. It is man's business to bear this in a manly spirit. They form but a portion of life's discipline, and should make them stronger, braver, and more enduring. Unwisely, and we may say, unjustly, too many men fail to leave their work shops or counting houses at the day's decline. They wrap them in bundles and carry them home to shadow their households. It was so with the young husband on this particular occasion. The stream of business had taken an eddying whirl, and thrown his vessel backward instead of onward, for a brief space; and though it was still in the current and sliding safely onward again, the jar and disappointment had fretted his mind severely. There was no heart warmth in the kisses he gave his wife, not because his love for her had failed in any degree, but because he had let care overshadow love. He drew his arms around her, but she was conscious of a diminished pressure in that embracing arm.

"Are you not well?" she inquired.

With what tender concern was the question asked!

"Very well," he replied.

He might be in body but not in mind, that was plain—for his voice was far from being cheerful.

She played and sang his favorite pieces, hoping to restore, by the charms of music, brightness to his spirit. But she was conscious of partial success. There was still a gravity in his manner never perceived before. At tea time she smiled upon him so sweetly across the table, and talked to him on such attractive themes, that the bright expression returned to his countenance, and he looked as happy as she could desire.

From the tea table they returned to their pleasant parlor. And now the time had come for offering her gift and receiving the coveted reward of glad surprise, followed by sweet kisses and loving words. Was she selfish! Did she think more of her reward than of the pleasure she would bestow? But this is questioning too closely.

"I will be back in a moment," she said, and, passing from the room, she went lightly up stairs. Both tone and manner betrayed the secret, or rather the possession of a secret with which her husband was to be surprised. Scarcely had her loving face faded from before his eyes, when the thought returned with a single bound, to an unpleasant event of the day; and the waters of his spirit were again troubled. He had actually arisen and crossed the floor twice, moved by a restless concern, when his wife came back with the dressing gown and slippers. She was trying to force her countenance into a quiet expression, to hold back the smiles that were continually striving to break in truant circles around her lips, when a single glance at her husband's face told her that the spirit driven away by the exercise of her love had returned again to his bosom. He looked at her soberly as she came forward.

"What are these?" he asked, almost coldly, repressing surprise, and affecting an ignorance that he did not feel in regard to the beautiful present she held in her hands.

"They are for you, dear," was the reply; "I made them."

"For me!" he exclaimed. "Nonsense! What do I want with such jimerackery? This is woman's wear. Do you think I would disfigure my feet with embroidered slippers, or dress up in that gown? Put them away, dear. Your husband is too much of a man to robe himself in gay colors, like a clown or an actor." And he waved his hand with an air of contempt.

There was a cold, sneering manner about him, partly affected and partly real, the result of his uncomfortable state of mind. Yet he loved his wife, and would not purposely have wounded her for the world.

This unexpected result—this cruel reception of her presents, over which she had wrought patiently, in golden hope, for many days—this dashing to the earth of her brimful cup of joy, just as it touched her lips, was more than the fond young wife could bear. To hide the tears that came rushing to her eyes, she turned away from her husband; and to conceal the sobs she had no power to repress, she went almost hurriedly from the room, and going back to the chamber from whence she had brought the present, she laid it away out of sight in a closet. Then covering her face with her hands, sat down and strove with herself to be calm. But the shadow was too deep—the heart ached too heavily.

In a little while her husband followed her, and discovering, to his surprise, that she was weeping, said, in a slightly reproving voice, "Why, bless me, not in tears! What a silly puss you are!—Why didn't you tell me you thought of making me a dressing-gown and a pair of slippers, and I would have vetoed the matter at once? You couldn't persuade me to wear such flaunting things. Come back to the parlor," he said, taking hold of her arm, and lifting her from the chair, "and sing a play for me. 'The Cream Waltz,' or 'The Tremolo,' or 'Dearest May,' or 'The Stilly Night,' are worth more to me than forty dressing-gowns, or a cargo of embroidered slippers."

Almost by force he led her back to the parlor, and placed her on the music stool. He selected a favorite piece and laid before her. But tears were in her eyes, and she could not see a note. Over the keys her fingers passed in skillful touches; but when she tried to take up the song, utterance failed, and sobs broke forth instead of words.

"How foolish!" said the husband, in a vexed tone. "I am surprised at you." And he turned from the piano and walked across the room.

A little while the sad wife remained where she was thus left alone, and in partial anger. Then rising, she went slowly from the room—her husband not seeking to restrain her—and going back to her chamber, sat down in darkness.

The shadow which had been cast upon

her spirit was very deep, and though the hidden sun came out again right early, it was a long time before his beams had power to scatter the cloud that floated in love's horizon.

The shadows we cast! Father, husband, wife, sister, brother, son, neighbor—are we not casting shadows daily on some hearts that are pining for the sunlight of our faces? We have given you two of life's true pictures, not a mirror, but a kaido-cope. In all their infinitely varied relations, men and women, selfish or thoughtlessly—from design, weakness or ignorance—are casting their shadows upon hearts that are pining for sunlight. A word, a look, a tone, an act, will cast a shadow, and sadden a spirit for hours and days. Speak kindly, be forgetters of self and regards of others, and you will cast but few shadows along the path of life.—The true gentleman is always tender to the feelings of others, always watchful lest he would unintentionally injure, always thinking, when with others, of their pleasure instead of his own. He casts but few shadows. Be gentlemen, ladies, or in a word, what includes all excellencies, be Christians, for it is the Christian who casts fewest shadows of all.

#### SPECTRUM ANALYSIS.

The London *Photographic News* has the following summary of the present state of knowledge on this interesting subject:—

The subject of spectrum analysis is still affording grounds for much scientific debate. It may be remembered that we have on more than one occasion pointed out that there was many reasons, experimental as well as theoretical, for concluding that the sweeping explanation of the cause of Fraunhofer's lines given by the German savans was, to say the least, open to great doubts. This opinion is now gradually gaining ground among scientific men. The Editor of the *Chemical News* has taken the same view as ourselves, and at the late meeting of the Pharmaceutical Society, Dr. W. A. Miller, in his lecture on the subject, urged the necessity of still considering the views of Kirchhoff and Bunsen as theoretical, there being many points which presented anomalous features. Some spectral lines, he said, were due to the incandescent metals, but others, undoubtedly, belonged to the atmosphere or to the different gases in which the ignition of the metal took place. The rise of temperature, too, evoked different lines

from the same substance. Chloride of lithium, in a Bunsen burner, gives a single crimson ray, in the hotter flame of hydrogen an additional orange ray appears; whilst the oxyhydrogen jet, or the voltaic arc, brings out a broad, brilliant blue band in addition, the same takes place with sodium and other metals. Fascinating as the German theory is, it must be remembered that it is still upon trial, and that it does not yet explain the facts known respecting the vapors of hydrogen, mercury, chlorine, bromine, sodium, or nitrogen. It was expected that spectral observations on the corona seen during the late solar eclipse on the 31st of December last would throw considerable light upon this obscure point. Up to the present moment, however, we have not heard what results were obtained. It will be remembered by our readers that, according to Kirchhoff's theory, that the sun consists of a central solid or liquid incandescent mass surrounded by luminous metallic vapors, the partial opacity of which occasioned the black lines of the spectrum—according to this theory, the light from the corona should proceed entirely from this incandescent metallic vapor and that in consequence of there being no more highly illuminated body behind it, the ordinary black lines ought to come out bright and luminous. This, if observed, would be one of the most startling results of the day, and would conclusively prove the truth of this beautiful theory, whilst the non-observance of such a reversal of the Fraunhofer line would seriously militate against the hypothesis.

No knowledge however profound, can constitute a teacher. A teacher must have knowledge, as an orator must have knowledge, as a builder must have materials; but as in choosing the builder of my house, I do not select the man who has the most materials in his yard, but I proceed to select him by reference to his skill, ingenuity and taste; and so also in testing an orator or a teacher, I satisfy myself that they fulfil the comparatively easy condition of possessing sufficient materials of knowledge with which to work. I look then to those high and noble qualities which are the characteristics of their peculiar calling. There were hundreds of men at Athens who knew more than Desmosthenes, many more that knew more, at Rome than Cicero; but there was but one Desmosthenes and one Cicero.—*Lord Ashburton.*

## REV. GEORGE GILFILLAN ON SELF-EDUCATION.

At the third annual banquet of the Dundee Grocers' Benevolent Society, the Rev. George Gilfillan said:—

Self-culture is not, let us notice, confined to uneducated men. All men worth anything have aided in educating themselves, and have, in this sense, been wiser than all their teachers. Even men College bred, unless they have given themselves a stern and secret training, will only turn out the characters described by Burns—

"A set o' dull conceited hatches,  
Confuse their brains in College classes,  
They gang in stirks, and come out asses,  
Plain truth to speak;  
And syne they seek to climb Parnassus,  
By dint o' Greek."

It was a genius of this order who once boasted that he had attended two Universities, to which the reply was, "And I knew a calf that sucked two cows, and the more he sucked the bigger calf he became." The term "Self-teaching," however, is usually restricted to the experience and training of those men who have been in a great measure destitute of educational advantages, and who have yet, through diligence, talent or genius, risen to eminent usefulness, or high literary distinction.

Secondly,—As to the benefits of Self-teaching, these may be viewed as chiefly affecting the subject—the self-taught man himself. The great teacher of man, after all, is the soul within him. If this be true, it is obvious that the self-taught man has the advantage of coming more directly in contact with that inner light. He sees it, not through the spectacles of books, but with open face, and with naked eagle eye. It is probably to this direct communion with ideal truth and beauty on the part of Shakspeare—the greatest of all self-taught and of all men—that Grey alludes in the lines in his "Progress of Poesy,"—

"Far from the sun and summer gale,  
In thy green lap was Nature's darling laid;  
What time wate lucid Avon strayed,  
To him the mighty mother did unveil  
Her awful face. The dauntless child  
Stretched forth his little arms and smiled."

And that dream of the Pilgrim's Progress by Bunyan, and these visions of Burns—the one in his auld clay biggin, where the Muse of Colla visited him on his lonely pallet, and the other by the roofless walls of Lincluden Abbey—were they ever likely to be dreamed or imagined by scholars or professors in academic bowers? Could an artificial Aytoun, or even an erratic Blackie, or even an all-learned

Hamilton have produced them? No the dungeon or the hovel is a fitter place for the highest order of imagination, when that exists, than the library of the British Museum or the walls of the Escurial; and although the spider taketh hold with her hands in king's palaces, the spirit of genius is more chary in her presence, and seeks rather the woodland cottage or the wild shielding on the mountain side, and the man of genius cries out—

"O! for a spark o' Nature's fire,  
That's a' the learning I desire."

The self-taught man has a greater freshness of feeling in beholding Nature, and a keener zest of sympathy with man, than the well educated. Hence Burns, when walking with Dugald Stewart on the summit of the Baird Hills, near Edinburgh, when he saw a hundred smoking cottages, had his pleasure enhanced far above that of the philosopher, because he knew by experience what worth, honesty, industry, and happiness, these humble roofs enclosed. No self-taught man, so far as I know, was ever a misanthropist. And why?—Because, in the first place, the near and habitual man, even in his lower forms, generates a calm, contemplative spirit in the wise observer, rather than pity and scorn; because, secondly, he sees the vast proportion of good which mingles with the evil; and because, thirdly, he sees less of that deceit and falsehood which constitute, so to speak, the Devil department in the race, and which high culture and civilization in themselves, tend rather to foster than to consume. The self-taught man is generally a man of one book. Hall said of Dr. Kippis that he was perhaps a very clever man, but he had laid so many books on his brains, that they could not move. This is never the case with the self-taught man. He knows only a few books, but he knows these well, and their effect is to stimulate, not to overpower.—

It was said of old, and may be said still, "Beware of the man of one book." Burns knew no book very thoroughly but the ballad poetry of Scotland. Shakspeare seems to have read little else than a translation of "Plutarch's Lives," and some old histories of England. Bunyan knew no book but one, but then that book was the Bible, and every word of that blessed volume lay in the quiet concordance of his heart. In fine, the self-taught, as stragglers with narrow circumstances, learn generally a certain hardihood of spirit, a contempt for petty difficulties and for pulling sentimentalisms. They are

generally men of iron mould, not used to the melting mood—thoroughly practical men, and men who care little for science, literature, or philosophy, unless they can be turned to useful human purposes.—Grant indeed that they sometimes become opinionative and dogmatic—that they seldom attain perfect ease of manners, and that their awkwardness often takes refuge in clumsy self-assertion, still, in this age of pretence and puppyism, of apeing of the fashionable, of wearing the cast-off garments of the manners of the great, it is refreshing to meet with men of sturdy independence, and blunt, bold manhood. Time would fail to go over the names of self-taught men who have done honor to our country. Besides those I have named already, there is a DeFoo, who not only wrote "Robinson Crusoe," but was one of the great original and anticipative minds of the world, and might almost be called the creator of our commercial, our periodical, our satirical and fictitious literature; James Ferguson, the astronomer, originally a Banffshire boy, studying the stars while herding the cattle upon the midnight heath; Gifford, bred a shoemaker, and dying the editor of the Quarterly Review; Alexander Wilson, who, from a Paisley pedlar, became the great American ornithologist; Cobbett, the brawny politician—the Swift of the nineteenth century who was originally a sergeant in the army; Hugh Miller, the mighty mason of Cromarty, whose his history is so familiar to all of us; and Alexander Smith, ten years ago a pattern-drawer in Glasgow, whom I now see standing as a candidate for the Chair of English Literature in the University of that city—a University he never had the privilege of attending. I close by simply calling upon the young men in this city to practice the manly acts and aspire to the hard-won honors of the self-taught. In this city young men are so early plunged into business, and there are so few educational establishments of a high class, that they must be self-educated if they are educated at all. I am aware of the highly praiseworthy efforts which have been made to found a Working Men's College here, and wish these all success—but I have often thought what a pity there is not a regular University here—what a pity that, while a petty place like St. Andrews has a world-famous College, there is none in a town of one hundred thousand inhabitants, and forming now such a noble centre in the northeast of Scotland. But, as I greatly fear, although there may be some chance of the British Association meeting here in 1863, that the Dundee University need hardly be expected till the Greek calends, or the 31st of April, I would earnestly urge all aspiring spirits to attend to the great business of Self-Education.

## MODERN CHILDREN.

An English magazine writer says:—"Children now are brought up on a very different principle from that on which their fathers and mothers were prepared for the wear and tear, for the sufferings and temptations of life. The difference between right and wrong, we frequently find now a-days, is made more of argumentative than of practical interest; and it is not unusual to hear a parent discussing with mere infants the whys and the wherefores, the pros and the cons of everything which it is required to do. A sharp child, consequently, often gets the best of the argument; the humiliated parent is reduced to silence or snappishness, according to his individual temperament, and the child sees his advantage, and does no fail to let it appear that he does.

"This is a very different system from the laconic 'do this' and 'do that' of a day gone by; or from the 'wholesome neglect,' the disgrace and isolation of the juvenile delinquent who was a wilful transgressor of established rules. No one was then allowed to plead moral color-blindness to the different shades of right and wrong. Children were not so much experimentalized upon; or brought up in that visionary theoretical school whose training leaves the youthful mind impressed with the idea that nothing is very right and that nothing is very wrong—that much which appears right on the face of it has some demoralizing tendency at the rest; and that much which at first sight strikes us as wrong, is in fact entitled to some interest, and is more a misfortune of circumstances than an error in act. The moral delinquent of this school is invested with a sort of value, as a chemical test by which to detect some poisonous ingredient in the last new educational tonic administered at the instigation of a successful quack.—The good little brother or sister who has no moral wound to heal is comparatively uninteresting."

☞ The Duke of Norfolk had a fancy for owls, of which he kept several. He called one, from its resemblance to the Chancellor, "Lord Thurlow." The Duke's Solicitor was once in conversation with his Grace, when, to his surprise, the owl-keeper came up and said, "Please you, my Lord, 'Lord Thurlow's' laid an egg."

☞ There is but one way to preserve the health, and that is to live moderately, take proper exercise, and be in the fresh air as much as possible.

## THE PAST.

Gone, forever gone, from us, is the past, with all its joys and sorrows, its pleasures and pains. Never again, but in memory, shall we grow happy in the sunlight of its pleasures, or bow beneath the weight of its afflicting hand. Yet, at times, we love to wander back through its desolate halls, and imagine them again peopled with their former inhabitants. We love to go back to childhood's happy hours, and imagine ourselves surrounded by those who were our companions, when our highest ambition was some school-boy triumphs, and our greatest grief no more lasting than a summer's day. We pause and consider if the hopes of those happy hearts that surrounded us in youth have been realized,—if, in the great battle of life, they have achieved the triumphs they anticipated. Ambition, the guiding star of youth, seemed to point an easy path to fame's summit: Hope whispered sweet words to the panting heart, and all was joy and gladness. But we pause not long for reflection,—a grassy mound, beside the stream where often we had wandered, points the resting place of some,—and anticipations never realized tell the fate of many still numbered with the living.

Yet, how instructive are the simple records of the past. There is a lesson read to us from out their midst that is not to be mistaken. As we review the season of youth, we may learn this lesson from its departure,—life is fast passing away, and before we are aware of it, another stage of existence will be ushered upon us. Let us remember that hope gleams out from every action of a well-spent life, and happiness is only found in doing good.

## HOW TO HAVE LIGHT.

We are responsible, not only for what we do, but for what we see. More than we often think, the eyes of the soul are in our power. Say what we will of the obscurities of Revelation and the mysteries of Providence, truly spiritual and believing men and women go on reading both deeper and deeper, clearer and clearer, all their lives, till at last, no longer through a glass darkly—the veil taken away—they see as they are seen, know as they are known, stand face to face with the Saviour they have so long and so trustingly followed, and have "open vision for the written word." If we do not behold the constellation of splendid truths that radiate their evangelic light from the *gospel*, it is be-

cause blindness is in the dim pupils of our eyes, unused or abused. Just as fast as we will let it, the day will dawn and the day star arise in our hearts. By living out all the goodness we know, in the daily beauty of holiness, we shall behold life's grand proportions. By walking with Christ you shall wear his likeness. Nay—for he is a living Christ—you shall have him formed within you, not only the hope, but the present possession of glory. And because you know him spiritually, in the purity and love of his life and cross, men will also take knowledge of you, that you have been with him, and are with him now, and shall be his people forever.—

Rev. Dr. F. D. Huntington.

THE MIND WANTS FOOD.—In a civilized community mental food is as necessary as bodily food. The mind "feeds" as well as the body. It is always active. It receives and digests, and grows or dwarfs according to its nourishment. But food of some sort it must have. Milk for babes, and meat for strong men, an apostolic maxim, applies as well to the mind as the body. The speaker meant it to do so; and as there is no possible satiety in riches, as our first pound in the savings bank makes us desire to make it a hundred, our first hundred a thousand, and so on, so there is no possible satiety in knowledge. We know something—we desire to know more; we would know all things. If in our days a tree of knowledge were planted, it is not only a single apple that would be plucked therefrom, but scarcely a leaf would be left on the tree.—*Family Herald*.

☞ A woman can no more become beautiful, in the true sense of the term, or remain so, without healthful exercise in the open air, than a plant can thrive without light. If we put the latter into a cellar, it either dies outright or refuses to bloom. Shall we wilt our sisters, wives or daughters by a similar deprivation of what is as necessary to their harmonious development?

☞ We well recollect the reply of an intelligent farmer, when asked if his horses were well matched. "Yes," said he, "they are matched first rate; one of them is willing to do all the work, and the other is willing he should."

☞ Forgiveness, the noblest of all self-denial, is the virtue, which he alone who can practice in himself can willingly believe in another.



## THE ATOM.

From the bottom of his nets a fisherman one day gave me three almost dying creatures, a sea hedgehog, a sea star, and another star, a pretty creature, which still moved and soon lost its delicate arms. I gave them some sea-water, but forgot them for two days, and when I again saw them, all were dead. On the surface of the water a thick gelatinous film. I took an atom of this on the point of a needle, that atom, when placed under the microscope, showed me the following scene. A whirling crowd of short, thick, strongly built animals—*kolpodes*—rushed to and fro as though intoxicated with their sense of life, delighted, I may say, that they were born, and keeping their birthday with a perfectly bacchanalian joy; while microscopic cells—*vibrions*—swam less than vibrated to spring forward. Wearied with the contemplation of such movement, the eye, however, soon remarked, that all was not in motion: there were some vibrions yet stiff and still, and there were some intertwined in heaps which had not yet detached themselves, and which looked as though expecting the moment of their deliverance. In that living fermentation of still motionless creatures, the disorderly *kolpodes* rushed and raged, hither and thither, regaling and fattening themselves at will.—And this grand spectacle was displayed within the compass of an atom of film taken on the point of a needle! How many such scenes would be enacted in the whole of the gelatinous film which had so promptly formed on the surface of the water containing three dead creatures! The time had been wonderfully put to profit. In two days the dead had made a world; for three animals that I had lost I had gained millions, abounding in youth, absorbed in a real fury of new life!

## THE BARBARISM OF STEEL PENS.

I am aware, says a recent writer, that it may be very fairly said that if a man is green enough to be induced by any representations of seller or advertiser, to make his coffee with a windlass, and shave himself with a stone, the only verdict he can expect from an intelligent jury is "screwed him right;" but look at another invention, under the tyranny of which we all groan more or less, but which very few have the strength of mind to resist. Has not the curse of steel pens swept over the land until decent handwriting is almost unknown? Do not ninety-nine persons in

a hundred use steel pens, and has more than one out of the ninety-nine the effrontery to say he can write with them? Lord Palmerston was quite right—the handwriting of this generation is abominable; and as new improvements in steel pens go on, that of the next will be worse. The fine Roman hand of the last century has died out; the steel can't do it. There is neither grace nor legibility in the angular scrawl that prevails now. Open any parish register of fifty years back, and see in what a fine legible hand, and scholar-like too in most cases, the parson of that day made his entries. Our present young parson, though he took a first-class at Oxford, and wears a most correct waistcoat, doesn't do it, and couldn't do it if his benefit of clergy depended on it.

**ENERGY.**—It is astonishing how much may be accomplished in self-culture by the energetic and the persevering, who are careful to avail themselves of opportunities, and use up the fragments of spare time, which the idle permit to run to waste.—Thus Ferguson learned astronomy from the heavens, when wrapped in a sheepskin on the highland hills,—thus Stone learned mathematics, while working as a journeyman-gardener,—thus Drew studied the highest philosophy in the intervals of cobbling shoes,—thus Miller taught himself geology, while working as a day laborer in a quarry. By bringing their minds to bear upon knowledge in its various aspects, and carefully using up the very odds and ends of their time, men such as these, in the very humblest circumstances, reached the highest culture, and acquired honorable distinction among their fellow men. It was one of the characteristic expressions of Chatterton, that God had sent his creatures into the world with arms long enough to reach anything, if they choose to be at the trouble.

☞ We carry our burdens in this life a great deal more heavily than we need to. They are made to be heavy that we may not be willing to carry them alone. It is said that an unhelped cross is the heaviest thing a man ever carried; but a Christ-touched cross is about the lightest thing a man ever carried.

☞ An exchange—says another exchange—comes to us with the notice that 'Truth' is crowded out this issue. This is most as bad as the up country editor who said, 'For the evil effects of intoxicating liquors see our inside.'

## TRYING TO THE BASTE.

An Hibernian, fresh from the green isle, having sufficient means to provide himself with a horse and cart, (the latter a kind he probably never saw before) went to work on a public road. Being directed by the 'boss' to move a lot of stones near by and deposit them in a gully at the side of the road, he forthwith loaded his cart, drove up to the place, and had nearly finished throwing off his load by hand, when the 'boss' told him that was not the way—he must tilt or dump his load all at once.—Paddy replied that he would know better the next time. After loading again he went to the chasm, put his shoulder to the wheel and upset the cart, horse and all, into the gully. Scratching his head, and looking rather doubtful at his horse below him, he observed:—"Bedad, it's a mighty expeditious way, but it must be tryin' to the baste."

**ANECDOTE OF A GATE.**—A correspondent of the *Home Journal*, writing of gates, tells this anecdote:—I once passed through a dooryard gate which did, unintentionally, give indication of the designer's character. The gate was a common one, shut by a chain and ball; but the post to which the inner end of the chain was attached was carved and painted in the likeness of a negro, with one hand raised to his cocked hat, and the other extended to welcome you in. As you opened the gate toward you going in, the negro post-pointer bent toward you, by a joint in his back, fairly bowing you in. Upon letting the gate go, a spring in his legs "brought him up standing" again, ready for the next comer. This faithful fellow performed the amiable for his master for many years, without reward, except now and then a coat—of paint; but finally died of a rheumatic back, contracted in his master's service.

☞ The armor plates for the new British frigate *Royal Oak* are to be put on vertically. Each plate will be 4½ inches thick, 15 feet in length and 3 feet 2 inches in width and will weigh four tons. The cost of each will be \$600. This vessel is to be covered from stem to stern with such plates.

☞ "My brudders," said a waggish darkey to a crowd, "in all affliction, in all ob your troubles, dar is one place you can always find sympathy." "Whar? Whar?" shouted several of his auditors. "In de dictionary!" he replied rolling his eyes skyward.