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(Published Under the Direction of the Hon. the Minister of Public Instruction.)

EDITED BY

HENRY H. MILES Esq., LL.D., D.C.L.,

ASSISTANT-SECRETARY OF THE MINISTRY OF PUBLIC INSTRUCTION.

AND

P. DELANEY Esq., of the Same Department.

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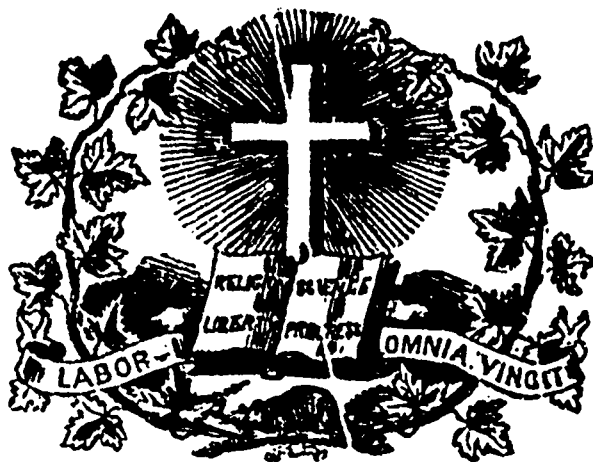
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LITERATURE

POETRY.

THE RESIGNATION.

O God, whose thunder shakes the sky .
Whose eye this atom globe surveys !
To thee, my only rock, I fly,
Thy mercy in thy justice praise.

The mystic mazes of thy will,
The shadows of celestial light,
Are past the power of human skill,—
But what th' Eternal acts is right.

O ! teach me in the trying hour,
When anguish swells the dewy tear,
To still my sorrows, own thy pow'r,
Thy goodness love, thy justice fear.

If in this bosom aught but thee
Encroaching sought a boundless sway,
Omniscience could the danger see,
And mercy look the cause away.

Then why, my soul, dost thou complain ?
Why drooping seek the dark recess ?
Shed off the melancholy chain,
For God created all to bless.

But ah ! my breast is human still ;
The rising sigh, the falling tear,
My languid vitals' feeble rill,
The sickness of my soul declare.

But yet, with fortitude resign'd,
I'll thank th' inflicter of the blow ;
Forbid the sigh, compose my mind,
Nor let the gush of mis'ry flow.

The gloomy mantle of the night,
Which on my sinking spirit steals,
Will vanish at the morning light,
Which God, my East, my Sun, reveals.

CHATTERTON.

Studies in English Orthoepy.

BY PROF. HENRY N. DAY, NEW HAVEN, CT.

There are many words in the English language the pronunciation of which is unsettled, that yet belong to classes in respect to which as classes good use is entirely harmonious. It is much to be desired that the pronunciation of such words should be conformed to the principles of the language, and not be allowed by blind and inconsiderate use to add still more to the abundant anomalies of the English tongue. It is proposed to notice some of these words in relation to the principle which is recognized as applying to others of the same class.

First, there is a large number of words having a vowel at the end of an unaccented syllable, the sound of which is unsettled and varying. Thus, *infamy* is pronounced sometimes with the sound of *a* in *father*, sometimes with the sound of this element in *fate*, but with short quantity in both cases; *direct* is pronounced by some with the sound of *i* in *pine*, by others with the sound of *i* in *pit*. Worcester denotes this vowel-sound by a mark which, he says, "is employed rather to indicate a slight stress of voice than to denote any particular quality of sound." His treatment of the difficulty, as might be anticipated from its inherent vagueness, only leads to confusion, and tends to perpetuate the discordant pronunciation. The revised edition of Webster's American Dictionary says "the *a* has properly a brief sound of the Italian *a*, as in *Cuba*, *amuse*, *America*; but, in familiar speech, it is almost always so slighted and obscured as to be indistinguishable from the neutral vowel, or *u* in *urge*, *murmur*, etc."; while *i* "has more commonly its short sound as in *philosophy*, *direct*, etc. But," it adds, "the *i* is usually long in the initial syllables *i*, *bi*, *chi*, *cli*, *pri*, *tri*, as in *idea*, *biology*, etc." It quotes from Smart the remark: "The inquirer must be sent to the dictionary to learn, in each particular case, the true pronunciation."

These quotations sufficiently indicate the fact of the unsettled and variant usage.

Now there are certain received principles applicable to this

class of words which, being intelligently apprehended, may help to settle usage aright.

In the first place, we have the general rule, as already cited, that at the end of an accented syllable *a* takes the sound of *a* in *fate*, while in an open unaccented syllable it takes the sound of *a* in *father*. Two exceptions, finding their ground and warrant in the very spirit of the rule, will cover all or nearly all the cases of difficulty that can arise here. First, if the vowel receive a secondary or weak accent, it inclines just in the degree of the accentuation to take the long sound. We should pronounce it long, thus, in *miscellany*, *momentary*, *advocacy*, *legislature*, etc., if we put a secondary accent on the penultimate syllable; but if, as the best usage seems to require, we withhold the accent, we should give to the *a* the sound of *a* in *father*. Secondly, the *a* before another vowel has its sound as in *fate*, as in *aerial*, *aorta*, *chaotic*. In the half-dozen words of this class in our vocabulary, exclusive of proper nouns, the *a* by its very position assimilates itself to the accented element, and therefore takes the long sound under the rule.

Ending a syllable, if sounded, always takes the sound given it in *mete*, *o* always the sound heard in *note*. To give this latter element the sound of short *u* unaccented in words ending in *ony* and *ory*, said in the revised Webster's Dictionary to be "according to universal usage in England," should be utterly reprobated. The *u* at the end of a syllable has the sound of *oo* preceded by the slight sound of *i* in *pit*. The American authorities except the case of *u* after *r* as in *erudition*, which they would pronounce *eroodition*, not *eryudition*. No warrant can be assigned for this deviation from a general rule, but a partial usage. It is doubted whether this exceptional pronunciation is more widely prevalent than the regular pronunciation; if it were vastly more prevalent than it is, the principle ought to prevail against it and effect its entire extirpation. The like exception is extended by these authorities to the *u* after *r* in accented syllables. *True*, they pronounce accordingly, *troo*. This is alike against rule, against a very prevalent usage, and, in this word, against derivation, as the original Anglo-Saxon *treow*, interposed the vowel sound before the *oo*. The tendency to insert this sheva element before the *oo* sound dates back beyond the rise of the proper English tongue, and should be accepted as among its settled laws.

The *i* at the end of an accented syllable follows the general rule, and takes the sound given it in *kite*; at the end of unaccented syllables, the usage, as already indicated, seem at first sight to be extremely anomalous, but we find, on clearer view, principle ruling even here. In middle syllables the sound is ever that of *i* in *pit*, as in *utility*. Only in initial syllables do the apparent anomalies occur. There are of this class in the language between three and four hundred words in all; that is, there are so many words in our vocabulary beginning with an unaccented syllable ending in *i*, a little less than three hundred exclusive of adjectives and adverbs immediately derived from other stem-words in use. Nearly one-half of these are marked in the revised edition of the American Dictionary as having the long sound of *i*, that heard in *kite*; one-fifteenth are not marked at all, but should mostly have the short sound; so that the words are just about evenly distributed into the two classes: one-half giving the *i* its long sound; the other half giving it its short sound. A close inspection of these words discloses the following as governing principles in the pronunciation:

First. Those words that are of other than classic origin have the *i* short; as *bijou*, *grisette*, *simoon*, *stilello*, *tirade*, also words of classic origin early received into the language or fully popularized, as *imagine*, *chimera*, *direct*, *italic*, *philosophy*.

Secondly. Derivative words of classic origin follow at first the analogy of their original stem-words; as *idolatry*, *isochronous*, *bipolar*, *chirography*, *dihedral*, *primeval*, *tricuspid*.

Thirdly. Many words of this class are in a transition state, passing from the analogies of their origin to those of the English language, which require the short sound. In this part of the

class, there is diversity of usage and conflict of rule. The revised American Dictionary thus pronounces with the *i* short, *divest*, *iridian*, *fidelity*, *liturgic*, *mirific*, *riparian*, etc., but with the *i* long, *dimit*, *iridium*, *finality*, *hilarity*, *ligation*, *sidereal*, *virago*, *vituperate*, etc.

y follows generally the analogy of *i*. It is short at the end of final unaccented syllables, as *apathy*, *perfidy*. If, however, the syllable take a slight secondary accent, it is long, as in *ally*, *lullaby*, *occupy*, *multiply*, *prophecy*, and in compounds, as *modify*, *liquefy*, *hereby*, *gadfly*, *outcry*. At the end of initial syllables, it is marked in the revised American Dictionary as long in three-fourths of the words given; as short in one-eighth; as either long or short in the compounds of the stem *typo*, as in *typographer*, *typography*, *typology*; and is not marked in one-twentieth of the words given. Inspection shows that, as with the *i*, long *y* passes to short *y*, as the word passes into more popular use as the word becomes, so to speak, vernacularized. If accent is thrown on the syllable, the element takes its long sound as in compounds, as *bycorner*, *drysaltery*. There are about one hundred and sixty words having *y* at the end of the initial syllable in the revised American Dictionary.

The sound represented by *ei* in the few words in which it occurs in our language seems of a very anomalous character. In regard to this digraph, it is to be observed that in no word in the language of Anglo-Saxon origin can it be supposed to represent an original *i* sound, except perhaps in *weird*, A. S. *wird*, in which word the *e* and the *i* have become transposed, as Chaucer spelled it *wierd*. *Height*, *sleight*, *neigh*, *neighbor*, *eight*, *weight*, *heifer*, *their*, and also *either* and *neither*, have taken an *i* probably as a mere orthographical expedient to indicate the long sound of the previous vowel, or as connecting vowel before a consonant suffix in derivation. *Either* and *neither*, spelled uniformly in the early stages of the language *ether*, *nether*, or *ethir*, *neithir*, were formerly pronounced *ayther*, *nayther*, as they are still in some communities. The pronunciation of these words with the long sound of *i* is of very recent origin, is against the genius of the language, and seems to mistake the origin of the *i* in the words as if it were an integrant essential element, and not inserted merely to show the sound of the preceding *e*. It should be entirely rejected. In the words of French or Latin origin having *ei*, the digraph is sounded like *a* in *fate*, except in *hair*, *ceil*, French *ciel*, *nonpariel*, *sovereign*, *forfeit*, *surfeit*, *counterfeit*, *seive*, *seize*, *sisin*, *inveigle*, *scymour*, and the derivatives from the Latin verb *capere*, as *conceive*, *deceive*, *perceive*, *receive*, *conceit*, *deceit*, and *receipt*. In all the *i* does not belong to the original stem, but is introduced only as an orthographic expedient. It should not, therefore, in pronunciation be accepted as an independent orthoepic element.

The sound of the letter *s* seems anomalous in some classes of words. Why, for instance, we should say, as we are directed in the revised American Dictionary, *desist*, with a hissing or apthongal *s*, and *desire* with a pthongal *s* like *z*, and may say *design* either with an apthongal or a pthongal *s*; why *disable*, *dismay*, *resorb*, *dissemble*, with apthongal *s*, but *disaster*, *dismal*, *resort*, *dissolve*, with pthongal *s*, and *possess* with *either*—the reason for these diversities is not apparent.

The general principle in relation to all those pairs of elements in our alphabet, paired from being formed by the same articulation, but the one of each pair being apthongal and the other pthongal, as the *f* with its cognate *v*, *th* in *thin*, and its cognate in *then*, *s* and *z*, *sh* and *zh*, is this: that they are apthongal except when, between pthongal elements, it is easier and consequently more euphonic to vocalize the articulation. The Anglo-Saxon had but one character to represent both the apthongal and the pthongal in the case of the *f* and the *s* pairs; its alphabetic system did not contain the *sh* pair; and it had distinct characters for the apthongal and the pthongal *th*, while we have but the one and that a digraph to represent both. The principle stated holds in relation to all the four pairs of elements however represented, including consequently the *sh*

element when represented by *si*, and the *s* of the consonant diphthong represented by *x*. In regard to the *f* pair, however, the English has introduced the *v*, so that *f* now represents the apthongal and *v* the phthongal, and no difficulty now exists as to the proper pronunciation. *Stephen*, formerly written with a *v*, *Steven*, is the only word in which *ph* represents the phthongal element, except, according to British usage, *nephew*, which was also formerly written with a *v*. It may be remarked in passing, that the grammatical anomaly of such plurals as *knives*, as well as of the verb-derivatives from nouns in *f*, as *to live*, *to strive*, from *life*, *strife*, is accounted for in the light of the principle stated, as the plural and the infinitive in the Anglo-Saxon took a connecting vowel before the final consonants in *s* and *v* respectively.

Applying the principle now to the *s* in the words of unsettled pronunciation, in the first place, we recognize in the light of the remark just made why certain words used as nouns have the apthongal, as *use*, *to use*, *rise*, *to rise*, *sacrifice*, *to sacrifice*; why, too, we should pronounce *suffice*, as if written with a *z*, *suffize*.

In the next place, the principle indicates that *ss* and *sc* should be apthongal. Thus, in fact, they generally are. But we have exceptions. *Scissors* and *hussar* were formerly spelled with a single *s*, and having the accent on the final syllable, regularly took the phthongal sound. *Hussy* is accounted for as a contraction of *housewife*. To pronounce *dissolve*, *discern*, *dessert*, *possess*, with a *z* sound, as directed in the revised American Dictionary, is in violation of the principle. Of these four, *discern* and *possess* are regularly pronounced with the apthongal sound of the *s* by many, if not by the most and the best speakers. They, certainly, if not also the others, should be brought back to the rule.

Further, *design*, *desist*, and *disable*, the usage in regard to which is more or less unsettled, should also be pronounced as if spelled with a *z*, in conformity with the principle.

Words of Latin stock with the prefix *re* before the *s*, conform more readily to the English analogy than those with the prefixes *de* and *dis*. Thus, we have the phthongal in *resolute*, *resonance*, *reservoir*, etc.; but the apthongal in *desolate*, *designate*, *disesteem* etc. We find, in fact, in respect of this last class of words as well as also in respect of words with the *s* before a phthongal consonant, the same distinction in force which has been already recognized in the case of words with the *i* in open initial syllables, that words less popularized including of course those in which the prefix is not recognized as significant in the word—for example, words recognized as of Latin origin are pronounced with the *s* apthongal; while those fully anglicized are pronounced with the *s* phthongal.

Once more, usage under this general principle of euphony has established a distinction as to their pronunciation in words having the *s* before a syllable commencing with a vowel according as that syllable is or is not under the accent. Thus it pronounces *disaster* with the *s* phthongal, but *disattire* with the *s* apthongal. This distinction should be applied to the consonant diphthong *x*. Accordingly the phthongal should be heard in *exact*, *exhaust*, *example*, *exhibit*, *luxuriate*; but the apthongal in *exceed*, *extend*, *exorcism*, *exhibition*, *luxury*. There is no good reason for excepting, as both Worcester and the revised American Dictionary do, *exhalation* from this rule, any more than *exhortation* and *exhumation*.—*Ohio Educational Monthly*.

Conversation.

Conversation has been said to be one of the lost arts—an assertion for which Talleyrand has been made responsible. Remembering as he did the brilliant salons of France in earlier days, he might be allowed to bewail the degeneracy of a duller generation. The sarcasm may be partly true. Yet we must not forget how common it is, even for those who have little of the great Frenchman's ability, to extol the glories of the days gone by, when, intellectually if not physically, there were giants in the land.

Undoubtedly in these modern days the art of conversation has some peculiar difficulties. We are all too busy, one way or the other—the movement of life, whether with or without an object, is too rapid—to allow us to spend as much time in talk as is required to perfect the accomplishment. People meet to eat and drink, to dance, to flirt, to act comedies or dress for tableaux, to play croquet, but not for conversation. Such talk as there is, we do rapidly, with as little expense of thought or of words as may be. It seems to be admitted generally that talk is an effort, which a busy person cannot be expected to make without an adequate motive, and which an idle person cannot be expected to make at all. Long words are abbreviated, as too troublesome to pronounce. Short recognized formulas, and handy condensed phrases, are made to serve, with very little variation, to express such few ideas as it is considered absolutely necessary to communicate; and the desired piquancy is sought in fashionable slang. Then, again, we all read a great deal more than our forefathers did, and therefore seem to have less need of talk as an intellectual exercise. We pay people to talk for us, in fact, just as the Orientals prefer hiring dancers to going through the exertion themselves. It is true that such trash as is commonly written and read is a very poor substitute in this respect for even the most ordinary conversation; for surely no real talk that ever was talked can come up to the inanity of dialogue and sentiment which fill the pages of three-fourths of our modern novels. Still, these do form the staple of mental entertainment to an unfortunately large number of people; and they seem quite content with their fare. To be sure, the talk of such persons can be no loss to society under any circumstances; and it may be better that they should exercise themselves within the pages of their green and yellow favourites than inflict their tediousness upon others. The purchase of a worthless volume at a railway stall may be very far from helping to improve the mind of the purchaser, but it may contribute very materially to the comfort of his fellow-passengers.

Some transcendental thinkers have imagined that all talk is at best a weakness. Mr. Carlyle's contempt for it is well known. He looks upon it for the most part as "sinful waste;" but such an opinion might be expected from the cynical philosophy which holds mankind to be "mostly fools." Others besides him have suggested that, inasmuch as speech must have been originally invented to express our wants, and even the existence of a want of any kind implies a state of imperfection, all articulate utterances are in fact nothing better than developments of the natural cry of an animal for food, and therefore really connected with our lower being. There is a passage in a letter of Frederick Robertson's (of Brighton) which is not without some truth and beauty, as indeed few of his recorded thoughts are. He suggests that the most perfect communion between two friends may be when they sit silent together, and "hour after hour passes, each taking it for granted that all which he desires to say is understood." He goes on as follows:—

"If we had perfect fulness of all things—the entire beatitude of being without a want—should we not lapse into the silence of heaven itself? All the utterances of man, his music, his poetry, are but the results of a loneliness which coarser and blunter spirits had been fortunate (or unfortunate) enough not to feel, and which compelled them to articulate expressions, in moans or cries of happiness, as the case may be."

All conversation, according to this theory, must be between dissatisfied people, just as it has been said that all the great works in this world are done by discontented men. If none of us wanted anything, and we were all contented with things exactly as they are, we should say nothing and do nothing. It is almost needless to add by way of illustration, that Mr. Robertson was, as Mr. Carlyle is a fluent and excellent talker, and that both might claim a fair share of that grand discontent which is said to be the heritage of genius.

The Orientals retain something of this idea, that all talk for mere talking's sake is inconsistent with the dignity of man. The

old Persian rule was, that every man should sit silent until he had something to say that was worth hearing. The social code in English or French society would enjoin almost the very opposite—that it would be better to say almost anything than not to talk at all. The most desperate plunge into nonsense, boldly made, is welcomed if it does but break one of those embarrassing pauses which we abhor as nature is said to do a vacuum. A silent member has his value in the House of Commons, but he is at a discount in any other society; he seems hardly to come up to the old Homeric definition of his kind,—to belong to the race of “articulate-speaking men.” It may be that this demand for talk at all hazards has helped to demoralise conversation; that the finer quality is no longer encouraged or appreciated, and therefore seldom produced; just as in the parallel case, the overwhelming influx of printed trash has made the cultivation of a true literary taste hopeless in the majority of readers.

It may be shrewdly suspected that, after all, the vaunted excellence of the conversation of older days has been considerably overrated. It has been asserted of our modern Parliamentary eloquence that it does not come up to the great powers of Fox and Sheridan. We have no Hansard of those days to refer to; but we know enough to feel sure that the popular reports of such things are never to be much depended upon. If Dr. Johnson could be accommodated under the gallery of the present House of Commons on the night of some great debate, he might have no occasion to complain of the degeneracy of real eloquence amongst our legislators, though he might miss some of the stately periods in which he thought proper to dress the speeches of his own younger days. So also we may venture to demur, on some points, to the eulogies which have been passed upon the talk which prevailed in the drawing rooms of our great-grand-mothers. If it was high art, it was certainly not the highest; for the art seems to have been nearly always patent—anything less like nature it is not possible to conceive. Elaborate and fulsome compliment, childish badinage, *double entendre* and profanity, made up a great part of it. Impromptus which had been carefully studied, remarks which passed for naïveté, but which were really consummate artifice, clever blasphemy, and the grossest thoughts veiled in the politest clothing—this is what we find the tone of good society a hundred year ago, what we are told we are to regret, and what, in those of its features which are most easily copied, it is said that in some circles there is a tendency to reproduce.

Such conversation as was not indebted for its piquancy to some of the ingredients above named, and which affected a higher intellectual range, must sometimes have been boring both to talkers and to listeners. It would certainly be so now, if we gather a fair idea of it from such notices as survive. People made believe to enjoy it, no doubt, as they do with many fashions of the present day; but they must sometimes have had to “make believe very hard.” When Lady Mary Wortley Montagu first met with the man who, as they were both aware, was meant to be her future husband, they talked together, of all things in the world, about “the Roman heroes.” Mr. Montagu mentioned some classical author, and she regretted that she had never read his works. The conversation of modern fashionable lovers would probably not make a very lively or instructive chronicle; but at least it can hardly be less natural than this. So in the days of that world-renowned circle of *Précieuses*, who met at the *Hotel de Rambouillet*, and who have the credit of having reformed and polished the French language itself, we are told that they talked classics, discussed the private life of the Romans, and composed and read aloud for each other’s edification sonnets and epigrams. At those Saturdays of Mademoiselle de Scudéri, where so much of what held itself to be the wit and intellect of the day met for the purpose of showing what clever talk could be, the notion was much the same. Does one wonder that after such an evening a French wit of the day seized his companion’s arm as they withdrew, and said, “For heaven’s sake, my friend, come and let us talk a little bad grammar!” or that Talleyrand, fresh from the *Bureaux d’esprit* (as they were called) of a later generation, in spite of his

admiration for his fair countrymen’s fine talk, should have said that “he found nonsense singularly refreshing”? We are told of one of the Scudéri evenings in particular, which was styled “*La Journée des Madrigaux*,” when the hostess and all her party set to work to compose verses—which of course were to be full of point and liveliness, and which were the subject of mutual praise and admiration. The spirit of the hour extended itself even to the kitchen, and squires of the chamber, footmen, and ladies’ maids caught the poetic fury, and disported themselves with this literary “*High Life below Stairs*.” Collectors of literary curiosities have reason to regret that no copies of this genuine domestic poetry have been preserved. But such performances as these are not conversation in any sense; rather, they show that in the case of those who have recourse to them, either the powers or the charms of conversation are insufficient. Modern attempts of the same kind have been made even in English society. The *Della Crusca Academy* and the *Blue Stocking Club* are well known, and had their day of popularity, though we remember them now only to laugh at their pretensions. If we may estimate the quality of their talk by the samples of their written compositions which have survived, it must have been poor enough. The tales and poetry of the ‘*Florence Miscellany*,’ for instance, which the amateur authors mutually praised and admired, would hardly be admitted now into the pages of a school magazine. The same kind of thing has been revived continually from time to time, and goes on still under various designations. It befell the present writer, on one occasion, to be introduced in the character of a visitor to one of the evening meetings of a very exclusive and mysterious body, whom (not to be too personal) may here be called the *Literary Rosicrucians*. A subject was given out some fortnight beforehand for treatment: and on this theme every member, lady or gentleman—happily the tax was not exacted from visitors—was expected to contribute either a short tale, a poem, or an original sketch in pencil or colours. The latter productions were laid on the tables at the monthly *soirée* of the club, and examined, with a criticism more or less friendly, by the assembled members. The artists were supposed to be unknown, and so had the advantage of listening, if they pleased, under this conventional incognito, to the opinions expressed. The literary contributions (also anonymous) were collected in some way by the secretary of the evening, and by him read aloud in succession. This was the trying scene in the evening’s performances. Some, of course, were intended to be grave, and some to be humorous; but it was not always easy to distinguish, at least until the reader (a bad one of course) came to an end, which was which. And, as a rule, the production which was most clearly meant to be facetious was exactly that at which it was impossible to laugh, while the pathetic pieces were those during which it was most difficult to maintain one’s gravity. A mere outsider had naturally that kind of excuse for preserving an impassive demeanor throughout, which was pleaded by the solitary hearer who remained unmoved during a sermon which threw all the rest of the congregation into tears—that he “belonged to another parish.” But for one of the sacred band, who felt that he might be sitting next to the author of the hour, and yet was unable either to laugh or cry in the proper places—or for the authors themselves—the situation did not appear a pleasant one. If Mademoiselle de Scudéri or Mrs. Montagu’s evenings were at all like this, we need hardly regret that we did not live in that Arcadia. The thing ended with a supper, which was decidedly more artistic than any other part of the entertainment (the kitchen, fortunately, not having caught the literary infection in this case), and which appeared to bring great relief and refreshment to many of the initiated, as well as to the profane guest who had been for once admitted to their mysteries.

Much complaint has been made of the conversation of men of acknowledged literary powers. Authors are accused of proving, in ordinary society, either positively dull, or unworthily frivolous. Probably instances enough might be brought forward in support of the accusation. The faculty of expressing ideas clearly and

pleasantly upon paper, when the writer can take his own time for thought and correction, is not always found in conjunction with that snap-shot readiness which his its mark instinctively, and with fair accuracy, at the moment. There may be here and there an author of whom it might be said, as of Goldsmith, that

"He wrote like an angel, but talked like poor Poll."

On the other hand, we must consider from what quarter the charge comes. In answer to the cynical proverb that no man is a hero to his valet-de-chambre, it was observed with much fairness that the fault might quite as likely be the valet's as the hero's. So, before we set down genius as a dull companion, we must consider what we have a right to expect from it in that character. The child who is shown the Queen will be terribly disappointed to see a lady plainly dressed in black; the young imagination misses the crown, the orb, and the sceptre. There are unreasonable people, no doubt, who expect to have an author always put on his war paint, and talk in character, as it were: as Mrs. Siddons terrified the footboy by asking in her deepest tragedy tones for "beer." Lord Macaulay probably never delivered orally a supplementary chapter of the History of England after dinner, and would have been extremely tiresome if he had. Mr. Dickens would likely object to doing a little Pickwick in a conversational form. Many writers who contribute, in their proper place, to the entertainment of the public, might very fairly shrink, out of natural dignity and delicacy, from anything like showing off in the ordinary intercourse of society. The conversation of clever people, whether their powers have ever been tested in print or not, is likely to be more or less interesting to clever people; it does not always follow that they should be appreciated by stupid ones. One may have heard the sneer that they keep their good things for their books. In a very limited sense, and by no means the sense intended, this may be true. Most literary performances which are worth anything are the result of considerably more thought and pains, and go through a longer process of mental correction and revision, than careless readers are inclined to believe. The two hundred lines an hour which Lucilius wrote standing on one foot were, in all probability, what might be expected—very lame affairs. Much which passes for rather brilliant conversation when we hear it, or take part in it, might have a very different effect if we had to read a proof-sheet of it. It is extremely probable that an author's best things *will* be found in his book rather than in his conversation. Miss Austen in past days, Mr. Lever and Mr. Trollope in the present, contrive to make their characters talk very cleverly indeed. Does any one suppose that they had nothing more to do than to sit down and take notes of what their clever friends said in actual life?

Books have been written on what their writers are pleased to call, "The Art of Conversation." But whether it is an art at all, in the sense of being subject to any rules, or attainable by any discipline of teaching, is much more than doubtful. In the same way there was supposed to be an art of poetry: the aspirant was to be fitted out with a dictionary of synonyms, and another of rhymes, and, by their help, was to turn out unexceptional verse. Judging from what has before now been printed as poetry, this creed must have found its proselytes. But the instances are probably rare in which talk has formed any subject of study, whether such an addition to our social education would be an improvement or not. Some of the best talkers, according to their lights, will be found among the uneducated classes, by any one who will be at the pains to draw them out. The power of telling a story well, with all due embellishment of tone and gesture—including such a disguise of the plain prosaic truth as all good story-tellers have a licence for—belongs to some of this class in perfection. Shrewd remarks upon things and persons, founded very often upon a nice discrimination of character; satire, keen if not refined; often very delicate flattery (if flattery be not too harsh a word for what is much more the real good-breeding than the smiling insincerities of higher life); and never, under any circumstances, those covert sneers under the mask of politeness,

of all social impertinences the most insufferable, which pass too often unrebuked, because to resent them involves almost an equal breach of good manners, and which are the exclusive accomplishments of the gentler sex. If some of the poor had only their Boswells, what amusing volumes might take the place of some of our tedious modern biographies! But these good talkers in humble life are fast dying out. They exist chiefly among the generation who knew not Her Majesty's School Inspectors—who read the book of life much more readily than their prime's, and understood the world within the limits of their own experience none the worse because they never knew which hemisphere they lived in. Learning may have done much for the village young ladies who press in Standard VI., but at least it has not made them pleasanter to talk to than their grandmothers. Possibly their little knowledge embarrasses them. They are conscious that their natural talk will hardly bear strict grammatical analysis, and they despair, on the other hand, of reaching the exalted style of dialogue which they find in the pages of their favourite penny novelist. The consequence is an awkward affectation, which is anything but an improvement on the rough and ready converse of the more illiterate poor. One cannot help feeling that there is much truth in the quaint protest of a pleasant writer who has little sympathy with modern cultivation—"If we had as many readers as we have books, what a precious dull lot we should be!"

BLACKWOOD.

(To be continued.)

Blind People.

It is a mistake, although a very common one, to suppose that the loss of sight is necessarily, or usually, accompanied by an atoning strength or acuteness of the other senses. In individual instances blind persons have shown themselves remarkable for what they could do by touch, hearing, and taste; but this is the result of the special training of those senses, coupled with a developed power of making quickly, and depending on, intellectual inferences from the impressions which the unimpaired senses communicate; and not a gift accompanying blindness.

The men who have lost their right arms on the battle-fields of the civil war have been taught to write with their left so well that their penmanship has won praise and prizes. But they have not learned to write with the left hand any more easily than an un hurt man might do—they have not learned as easily; but they have had a motive in necessity. So the loss of sight weakens and depresses the powers that remain, diminishes the courage, obscures and enfeebles many of the fundamental ideas and conceptions of the mind, and deprives the sufferer of a most important aid in the development of the other senses. But notwithstanding this drawback, how wonderful is the quickness displayed by blind persons!

Such, for instance, as that of Blacklock, who was on the point of walking into a deep well, if the sound of his little dog's feet, pattering before him on the board by which half of it was covered, had not warned him of danger; of Saunderson, who touched an antiquarian coin with his tongue and was sure it wasn't Roman; and who knew that a certain lady had white teeth, because "for the last half hour she had done nothing but laugh;" of the Bokhara shopkeeper, described by Vambery, who kept sixteen kinds of tea, and could tell them all apart by the touch (or was it by the taste?); of Stanley, who, unexpectedly addressed in Pall Mall with the question, in a feigned voice, from a gentleman who had been absent in Jamaica for twenty years, "How do you do, Mr. Stanley?" responded, after an instant's hesitation, "God bless me, Mr. Smith! how long have you been in England?" of Gough, the blind mathematician and naturalist of Kendal, who, when in his old age a rare plant was brought to him, examined it with the tip of his tongue, at once gave the correct name, and declared he had never seen but one specimen of it, and that was fifty years ago; of Wilson, the blind bell-ringer of Dumfries, who tripped up the steps to the belfry as quickly and

as certainly as if possessed of the keenest sight, and rarely missed the key-hole at the first trial with the key; of Dr. Willard, of Deerfield, Massachusetts, who, having become blind while still a young man, at the age of eighty-three could gather his own fruit, prune the trees judiciously, lay out and plant his garden, selecting and sowing the seeds without mistake; of John Metcalf, the blind roadmaker, who guided lost travellers along the intricate roads so skillfully that they never suspected but that he could see; of Francis Huber, who discovered facts in regard to the life and habits of bees which the wisest and most keen-sighted naturalists had failed to detect.

So also it is related that a blind messenger at Edinburg was sent with a mattress to a customer, and with it the bill for payment. The sender of the mattress was surprised to see the messenger return with the account and the mattress too. "I've brought back baith, ye see, Sir," said he. "How so?" "Indeed, Sir, I didna like t' leave 't yonder, else I'm sure we wad ne'er see the siller—there's nae a stick of furniture within the door!" "How do you come to know that?" "Oh, Sir, twa taps on the floor wi' my stick soon tell't me that."

A single incident is sufficient proof of the masterly skill of Stanley in the management of the organ. At a public performance of one of Handel's "Te Deums" the organ was found to be a half note too sharp for the other instruments in the orchestra; whereupon Stanley, who was conducting the music, instead of requiring that the violins should be screwed up to the organ's higher range, at once, without premeditation, transposed the whole piece to suit them into a lower key. This was the more remarkable because the new key was the remote one of C sharp major.

Many instances might be cited in proof of the accuracy of a blind man's memory. "When I was a young man," says a director of the Great Malvern Museum, "for many years I hunted in vain to kill a *common dotterel*, which Pennant, the great naturalist, said ought to be called '*uncommon*.' But at last I shot one, and sent it to him. I never saw the famous old man again for upwards of thirty years, and long after he had become blind. Meeting him then by accident, 'I can hardly hope,' I said, 'that you will remember me, Mr. Pennant? For a moment the blind man hesitated, and then cried out, with sudden eagerness, 'Ah! my friend of the dotterel!'"

Anciently the blind were neglected, and left in a great measure to their own resources and to the charity of friends; they were regarded as incapable of special development or education. The art of giving instruction in special and peculiar ways to this unfortunate class was slowly introduced, in comparatively modern times, taking its commencement in France in the thirteenth century, other countries following for the most part and for a long time the lead of French experiment. As is well known, the whole course of progress in this respect has been in the direction of instruction in special institutions, and not in any methods or plans of domestic training.

The blind child must be sent from home to an institution where special efforts can be made to enlighten his darkened mind. And yet, with all the helps which can be given him, with what infinite difficulty does he tread the path to knowledge? He is brought, for example, into an extensive building, with which he must become acquainted almost entirely by touch and hearing. All is new and strange. But in a few weeks he can navigate the difficult passages with considerable dexterity, finds his own seat at table, his place in the basket-room or work-shop, and has, most likely, chosen a special companion from among the sightless pupils. As months pass on he learns to distinguish his own tools and implements from those of his companions by some little flaw or peculiarity not apparent to his teacher; to measure distances with wonderful accuracy; to know the step of every teacher and every companion. In short, touch and hearing are being silently and surely educated; the ear, a watchful sentinel and skillful guide, becomes keener, and the fingers more delicately susceptible and discriminating.

When, however, he seeks that mental development and education which comes chiefly through books, difficulties thicken. The elementary processes are slow and laborious. Numerous systems of printing have been invented for the use of the blind—all very ingenious, no doubt, but most of them difficult to be understood by a person *with* eyes, and we should suppose they would be hopelessly bewildering to one without them. Those who are gifted with special acuteness of touch, and corresponding mental ability, learn by patient effort, to read with facility. But facts mentioned in the recent Report of the New-York Institution for the Blind show that the majority of pupils meet serious difficulties in learning to read at all well. The question as to what kind of alphabet is best adapted to their use is by no means settled. The Boston and the Philadelphia (or Glasgow, as it is sometimes called) systems have been the most popular, and are composed of lines which form letters much like our ordinary alphabet. In Great Britain the Philadelphia letter is known as Alston's.

A method of writing with points, invented by Braille, is now in general use in many institutions for the blind. And while it is argued by some that there is great advantage in having a system of embossed printing for the blind in which the alphabet resembles as nearly as possible that in ordinary use among the seeing, on the other hand, the point alphabet is infinitely more simple, and can be readily learned by many who have utterly failed to master the Boston print. It is less laborious to write, and also much space is saved in printing. Books for the blind are both expensive and bulky. The Bible in the Boston type makes a set of eight huge volumes.

The Braille system, which has been extensively adopted, is based on ten fundamental signs, representing the first ten letters of the alphabet, and also the ten Arabic numerals, as follows:

A	B	C	D	E	F	G	H	I	J
•	•	••	••	•	••	••	•	•	•
1	2	3	4	5	6	7	8	9	0

By very simple additions the other letters are represented. This system has also been applied to musical notation in such a manner as to render the reading and writing of music very easy. The mode of writing is simple. The apparatus consists of a board, with a surface grooved horizontally and vertically by lines about an eighth of an inch apart. Over the board a frame is fitted. Sheets of paper being placed over the board, the points are made with a style, through a slip of perforated metal, which contains all the changes used in the system. As the sheets must be reversed to be read, the writing must be from right to left. A few books have been printed in the point print, and some system of this kind certainly commends itself to those interested in the education of the blind from its great simplicity.

A very ingenious invention was made some years ago by two blind men of Edinburgh, and used for many years in the Edinburgh Institution as a substitute for books and manuscripts, though not generally adopted. It was called the string alphabet, being a mode of designating the different letters by the form and distances of knots on a cord. Thus a book could be kept rolled up like a ball, and unrolled and read at pleasure; or a communication fine cord be sent by letter to a friend.

The blind can often master arithmetic with comparative ease. Many curious contrivances have been invented to aid them in their calculations. The board which Saunderson, a noted mathematical genius, used was a very complicated affair. It was about a foot square, fixed in a narrow frame, and contained a great number of cross parallel lines drawn at right angles to each other. The edges of the board had grooves about two inches apart, and to each groove belonged five parallels, each square inch being subdivided into one hundred smaller squares. At every point of intersection was a small hole to receive a pin. Saunderson always kept two boxes of pins by his side when at work, and these, by difference of position or head, expressed to him the various numerals; a larger pin in the centre of each little

square standing for zero, a smaller one for I, and the other numerals were detected by their relative position to these.

Saunderson manipulated the pins with inconceivable quickness; but the exact way in which he used them in his calculations is altogether a mystery. It is probable that he used groups of pins, from time to time, to express certain stages in the operation, as memoranda to which he could refer again and again. Be this as it may, however, there is no doubt that he worked problems of every—even the highest—kind, both in common arithmetic and algebra, with great rapidity and equal accuracy. Genius as he was, and full of resources which genius alone can devise and use, he would doubtless have rejoiced to possess one of the plain and simple arithmetic boards now in use.

A popular impression is afloat that some clever blind people have the power of detecting colors by the touch. This is an error; touch can do nothing here. Yet the blind man may weave you a rug bright with all the colors of the rainbow, exactly after the pattern which you prescribe. In the first place, his threads of wool are all placed for him by his side, in one exact order, say white, crimson, blue yellow, and maroon. They are always in the same order and place, so that a takes up whichever he needs with unerring certainty. Hung up in front of him, but easily within reach of his fingers, is a square of smooth, thin deal, on which is traced the pattern of his rug in nails with heads of every possible variety of shape—round, square, diamond-shape, or triangular; tacks, brads and buttons; some driven home to the surface of the board, others raised above it; but all telling their own story of red, green, white or blue. He reads his pattern with his fingers, and weaves in the brilliant colors as deftly as if he saw every tint. If his touch is keen his pattern can be set for him by the help of letters and figures, certain letters standing for certain colors, and the figures indicating how many threads or strands are to be taken. Then the different colors all being arranged in regular order he skillfully brings out the intricacies of his pattern.

The material used for making baskets is sometimes colored with such substances that the red, for example, is harsher to the touch than the blue. In such cases the blind basketmaker is soon able, apparently, to detect colors by the touch, while in reality it is a difference in substance.

In the various institutions for the blind the making of baskets, brooms, brushes, mattresses, and other similar articles, is systematically taught. This work is performed with great neatness and dexterity. It is often said that the work of the blind can not be equal to that of the seeing; but the brooms and mattresses made at the New York Institution for the blind prove the contrary. Special care is also taken in that institution, as well as in others, that the pupils should gain practical information in regard to the cost of material, the proper prices to be affixed to manufactured articles, etc., so that when they leave the institution they may be able to do business independently, if circumstances render it needful.

The great passion in the life of a blind man, when once aroused, is music. Here he thinks he can achieve, if not immortality, at least renown and certain independence. It is to him a source of the highest, purest pleasure, a solace under all his troubles, almost light in his darkness. It rightly occupies a prominent place in all institutions for the education of the sightless, and surprising skill and proficiency is often attained.

Among the mural tablets of the ancient Egyptians it is said there is one from the tombs of Alabastron representing a blind harper sitting cross-legged on the ground, attended by seven other blind men similarly seated, who sing and beat time with their hands. They were clearly professional musicians, full of animation and interest in their work; and expressing by every feature of the face, as well as their very position, their darkened lot. In those ancient times no systematic provision appears to have been made for the blind; but when music became their resource, they seem not only to have met with compassion and help, but to have found a pure enjoyment.

There is a pleasant incident related of Mendelssohn, who went one hot summer to rest his overtaxed brain in Zurich. There he was besieged by eager admirers, but would accept of no invitation until hearing that the blind pupils of the Blind School were anxious, as they said, to "see him," he visited them. He spoke to the sightless assembly in kindest words, and listened to their songs and choruses, some even of their own composing, with interest and pleasure. And then the great musician asked permission to sit down at their piano, and wandered away into one of those wild and tender strains of speaking melody for which he was so famous. His silent, wrapt audience listened so intently to "The Song without Words," that a pinfall would have broken the stillness. One by one over the eager faces crept the air of deep, quiet joy, untill in the midst of the great flood of mingling harmonies, a voice came to them out of the very chorus they had just been singing. Then their enthusiasm knew no bounds. The great master had carried them away, at his will, to heights of joy and triumphant praise before unknown; he had whispered to them of sorrow, and the cloudy ways of life, in words of soft, unbroken tenderness; and now he stirred their inmost depths by a strain of their own weaving, into which he poured a new tide of living song, new grace, and new meaning. No words could tell what they felt; they could have pressed him to their very hearts for joy. This was not long before the great musician's death; but he still lives in the Blind School at Zurich, and there still remains as a precious relic the master's chair in which he sat.

Where real musical genius, intellect, and education are combined, the blind musician may at once take high rank: and not a few have astonished the world with grand and glorious strains. Occasionally, also, some strange prodigy, like "Blind Tom," attracts attention for a time. Until seven years old this old genius was regarded as an idiot. Suddenly one night he was overheard playing the piano in his master's drawing-room, touching it with singular grace and beauty, wandering through rapid cadences, and wild bursts of melody, as a finished musician. As far as could be known, he had never even touched a piano till that night. From that time forth he had free access to the instrument, on which he every day performed greater wonders, repeating without effort almost note by note any music once played to him, and with wonderful accuracy mimicking any fault or peculiarity in the style of the performer. His marvelous powers were soon exhibited to the public. He would sit down and play, with amazing correctness, difficult pieces of music, a dozen pages in length, which he had heard but once. Notwithstanding this dexterity, one of his favorite feats was to produce an outrageous, discordant jumble of sound which no ear of the slightest pretence to sensibility could produce or endure without intense pain and disgust. The case of Blind Tom stands alone as a positive anomaly.

While to a majority of the blind music is a source of delight the acquisition of it is generally laborious. The process of deciphering any of the printed signs by which musical changes are made known to them is long and tedious. Consequently the pupils are usually taught by dictation; a short passage being given by the teacher, and repeated by the pupil until he has mastered it. In this way a piece of music is gradually but accurately learned, and when once imprinted in the memory it is rarely forgotten or lost.

The blind have their sports and games and recreative employments; although for the most part these are of the quieter kind. Checkers, chess, dominoes, and games of a similar nature, are attractive to them, and often they acquire a great deal of skill. Numerous little fancy articles are made by stringing beads on small wire. The beads are arranged according to color in different boxes; the blind girl takes the end of her wire, and passes it several times through the beads, by which means several probably are strung on to the wire. She counts carefully the number she needs, in accordance to her own fancy, or the directions she has received, and retains those on the wire while she removes the

others. Fine and delicate work of various sorts is sometimes done, which would seem quite impossible for a blind person to accomplish. There is now in the reception-room of the New York Institution for the Blind a large and beautiful wreath of flowers, made of hair, and entirely the handiwork of a sightless person.

The blind sometimes have very false and curious conceptions in regard to sight. "I can't understand," said a clever blind man, "how things can be seen to be round or square, without passing the fingers over them." The process of seeing, to a man born blind, must be more or less of a mystery. Even Saunderston only got so far as to conceive that "the art of seeing was similar to that of a series of threads being drawn from the distant object to the eye.

Du Puiseaux, the son of a Professor of Philosophy in the University of Paris, was in some things one of the shrewdest men of his day, having attained considerable proficiency in botany and chemistry; but he was blind. He had a wonderful memory for sounds, and could, it is said, recognize by their voices persons whom he had only once heard. He could tell if he was in a street or a blind alley, in a large room or a small one; but he believed that astronomers were the only people who saw with telescopes, and that they had their eyes differently formed from other men. Nor was his notion about eyes in general a whit less incorrect. "The eye," said he, "is an organ on which the air should have the same effect as my stick on my hand." A boy upon whom Cheselden operated for cataract, had clearly been of the same opinion. Even when restored to sight, he believed that the objects he looked on touched his eyes, as those which he felt touched his skin; and he consequently had no true idea of distance. He asked "which was the sense that deceived him, the sight or the touch?" He wondered how a likeness of his father's face could be got into so small a space as his mother's watch-case; it seemed to him as impossible as getting a bushel into a pint measure. It took him some time to learn to distinguish between the dog and the cat, until he had felt them over carefully with his own hand. It is not to be wondered at, therefore, that when some one asked Du Puiseaux if he "would not be glad to have his sight," he replied, "If it were not for curiosity I would rather have long arms; it seems to me that my hands would teach me better what is passing in the moon than your eyes or telescopes." Even among the educated blind there must exist strangely vague and incorrect ideas in regard to the physical and metaphysical world. Cut off as the blind man is, in a measure, from the rest of the world, and from many channels of light and information open to others, his isolation is said to give him special power and aptitude for the study of abstract things; of philosophy and of mathematics. Isolated, undoubtedly he is; when he wishes to think, his blindness saves him from the intrusion of external objects and the busy crowd of ideas which wait about on the world of visible things; it may free him from some illusions of the senses, and the snares of outside appearance; he easily becomes abstracted, where a man with sight would often find it hard: so far, therefore, his way toward deep, inward thought is cleared; wind and tide seem in his favor. Yet, although more than one philosopher is said to have plunged himself into darkness, for the purpose of intense and absolute thought, few, we fancy, would agree with the old woman who said to Dr. Guyse, her minister, who had suddenly become blind, "God be praised that sight is gone! You're more powerful than ever, now ye've no notes."

The comparative statistics of blindness in different countries reveal some very singular facts. In the United States there are fewer blind persons in proportion to the inhabitants than in any other country in the world, there being only one in about 2460 inhabitants. Norway, for instance, has 1 in 540, Denmark 1 in 1523, Sweden 1 in 1419, Bavaria but 1 in 1986, and France 1 in 938; while Newfoundland has 1 in 1426, Nova Scotia 1 in 1788, and Prince Edward Island 1 in 1880. It is quite impossible to find a satisfactory reason for all of these differences,

although variations of climate give an explanation of some. Between 20° and 30° north latitude the rate of the blind to the whole number of inhabitants is stated to be 1 too to 109; between 50° and 60° 1 to 1400; while between 70° and 80° it is 1 to 550.

In round numbers, the entire number of blind persons in the United States is about 12,000; in Great Britain, about 30,000; in France, 38,000. There are numerous institutions, both in this country and in Europe, conducted on liberal principles, which aim to give this unfortunate class an education which will fit them for any position in life which their infirmity will allow them to fill.

The New York Institution for the Blind has had 155, pupils during the last year. The course of study is carefully arranged so as to be adapted to pupils at all stages of advancement; such instruction is given in the Industrial Department as will be of practical benefit; and special attention is paid to the general health and comfort of the inmates. A visit to such an institution as this, while it awakens the deepest sympathy for those deprived of sight, also causes one to rejoice that so much has been done by systematic benevolence to relieve their condition.

Notwithstanding all that can be done for them, yet the great majority of the blind do, more or less, dwell in a separate and peculiar domain of their own. However we may try to lessen the sharpness of the line which divides them from the seeing world, still they are divided, and, at certain times, stand, as it were, aloof from the multitude of seeing men. They are utterly barred off from a thousand channels through which intelligence from the outer world speaks with silent yet living voice to the whole human race. It is impossible to measure what their loss is, or how sharp the privation. When all has been done that can be done for their relief, guidance, and support, the cloud under which they still live is deep and dark. However bright the lining of that cloud—and no one learns to be more fully conscious of its beauty and brightness than the sufferer himself—there must be times when the darkness grows deep and heavy and hard to be borne. Yet it is never too early with a blind child to teach him that he is not alone in the darkness. Never too early to lead him to believe that the same living and mighty Being who has made, and controls, and will judge the rest of the world—is the very same that, unseen, is about, and keeps, and will judge *him* at the last; that there is but one Father in the heaven above, in whom we all alike must trust.

And no one is more ready and more willing to learn to believe this than the blind child if he fall into the hands of a kind and loving teacher.—*Harper's Monthly*.

EDUCATION.

A Finished Education.

"I think," said Mrs. B., "I shall take Angelina out of the public school, and send her to a 'Young Ladies' Seminary.'"

"What is the matter with the public school?" asked Mr. B.

"O! I've no particular fault to find with it; but Angelina is now thirteen years old, and ought to begin to think of finishing her education. It's of no use for her to keep drumming over arithmetic, grammar, and geography. She ought to be attending to the advanced branches. Why, there is little Francena across the way, only ten years old, and she studies French, Spanish, Botany, History, and Philosophy, and her teacher says she is making wonderful progress. Our Angelina has been joggling along in the public schools, and is really behind the times. So next week, she must commence taking lessons in music and dancing, drawing and painting, and in the modern languages. In a year, at most, she must finish her education and come out into society."

"A finished education!" Of all the humbugs of our sham-ridden race, that of a finished education at a boarding school is the greatest. And of all ludicrous objects next to a dandy pedant

fresh from college, a young lady—there are no girls—sent home according to order, is the most supremely ridiculous.

Is the training of such schools calculated to give mental vigor and independence of thought? How many of the girls who study French and Spanish ever acquire more than a mere smattering? Nine out of ten never wade half-way through Ollendorff's First Lessons.

If a young girl is to have the advantages of a liberal education and expects to pursue a regular course of study, let her study the languages; but if she can attend school only a limited period of time, it is more than useless. A girl, too, must be fitted with an education as the milliner fits her with a dress.

Education is a growth—a development. It does not consist in a long array of studies, in "going over" so many pages in botany, astronomy, and 'dear, delightful French.' True, many parents judge of the progress of their daughters only in this way. No wonder they have become dissatisfied with the plain schools of less pretensions. Mental growth and strength of mind cannot be measured by the volume. Young girls, who are on the point of finishing your education, exercise your common sense. Which would you prefer: to be able to write a correct and elegant letter in English to your future husband, or to favor him with an exquisite little French billet-doux? Would you have the power of educating your children in common things, or would you prefer to teach them painting? Do you imagine that your "finished education" will be of much service to you in real life? If you think to dazzle young gentlemen with boarding school accomplishments, most certainly you are laboring under an egregious error. Think you that a man with his eyes wide open will mistake a peacock for a nightingale? or, with his ears wide open, will mistake French for common sense? You may be flattered by the butterflies of society, but those whose esteem and love you would really wish to win, will never be deceived by the flimsy veil of accomplishments.

Girls, be sensible. Don't imagine that you can be turned out finished scholars at the advanced age even of fifteen or sixteen. If you wish to be a woman, acquire the education of a woman. If you wish to become belles and butterflies, make use of the quack nostrums of education which are paraded rightly in the same column with patent medicines. Don't think of finishing your education before you begin it.—*California Teacher.*

Physical Education.

(From the *Montreal Herald* of Jan. 8th.)

We have recently witnessed the exercises of the boys of our High School at a public exhibition, given by our friends with the worthy object of contributing to the funds of the House of Refuge; and we were impressed with the health-bestowing exercises of the gymnastic portion of the entertainment. Subsequently, Mr. Barnjum, the manager, gave a selected exhibition of a young ladies' class, at which we were present. The movements were graceful and health invigorating, each muscle of the body was brought into play, and duly exercised. The class was composed of little girls ranging from 7 or 8 to 15 years of age. The various exercises consisted of walking, running, dancing the dumb-bell exercise, and the exercise of the rings, all being accompanied by appropriate music. These various exercises are based on those first introduced by Ling of Stockholm, and are calculated to be of the greatest benefit to muscular development. It is a fact worthy of note that many of the ailments of the body proceed from a system of mental cramming of the young at the expense of muscular energy. Youth is the season of growth both of body and mind, and so sure as mental training is forced, and bodily exercise neglected, there will result disease of the neglected body in some form. In the education of youth it is desir-

able that harmony should be consulted, by this we mean that harmonious development of the body with the intellectual faculties, each depending on one another, and each equally essential to perfect and uninterrupted health. Many of the ailments of the young, especially spinal curvatures, are due to a want of tenacity in those muscles which are intended to support the weight of the head and upper extremities. If these muscles are neglected as they too often are, by permitting young children and more especially young girls to be content with the amount of exercise they receive by a walk or drive to and from their school, it is almost certain to result in disaster, or at best, in feeble development which may, and often does, end in serious and permanent injury. What would be thought of the stock breeder who fearful of his young animals breaking their legs or getting into some mischief in the field, was content in driving them to water and back again to be shut up in a close stall for the rest of the day? Man is, after all, but an animal, subject to the same laws and having the same beneficent hand to guide him, and it is absurd for him to carve out a way of his own, as regards the nurture of his offspring, at once in direct violation of the most apparent truths. We regard exercises similar to those which we witnessed the other evening of greater importance in a moral sense, as it will be found that those who freely indulge in athletic sports are less liable to give way to temptation and seek amusement in the various debasing passions of which man became heir at the fall. It is aptly said by Rousseau that "the weaker the body the more it encumbers and weakens the soul." Gymnastic exercises ought to be an essential and indispensable part of education for both sexes; in speaking of gymnastics it is not to be understood we refer to the converting oneself into a whirligig or Catherine wheel; these are feats which answer for the sterner sex, but free and beneficial exercises can be indulged in without any apparatus whatever.

The benefits to be derived by a steady course of exercise are incalculable, but to be indulged in at all it is necessary that a competent instructor should be in attendance.

These benefits may be thus hastily summed up.

Frequent exercises render the muscles firm and increase their development; they render more active the general circulation, so that each portion of the body receives its due amount of nourishment.

They render the muscles more subservient to the will, so that the movements of the body are more graceful, the various extremities acquiring a pleasing firmness, steadiness and dexterity in motion.

Gymnastic exercises develop the capacity of the chest, giving increased capacity for the free play of the lungs, they tend to the symmetric development of the body as a whole, so that no one portion increases in size at the expense of another part.

They prevent occurrence of obesity, which is an evidence of a feeble state of health of certain portions, most frequently the result of excesses in alimentation.

The healthful tone of the skin is promoted by free gymnastics, thus rendering it less liable to the injurious influences and alternations in temperature—a common source of ill health.

And above all they give to the individual that self reliance which should be possessed by each one, so that under trying circumstances, or in the hour of danger, resources are at hand by the exercise of which life or limb have been frequently saved. These, then, are a few of the benefits to be derived by a steady perseverance in muscular exercises, and we can heartily recommend to the heads of families the advisability of permitting their children of both sexes to seek the health invigorating exercises which are to be derived by attendance at the gymnastic institute of Mr. Barnjum.—*Canada Medical Journal.*

OFFICIAL NOTICES.



ERECTION OF THE MUNICIPALITY OF STE. MARGUERITE OF WEXFORD.

His Excellency the Lieutenant Governor, was pleased, by an order in Council, dated 24th. December last:

To erect into a Scholastic Municipality the new parish of Ste. Marguerite of Wexford, with the following limits, namely: The third and fourth ranges west comprising lot No. 13 as far as lot 34 inclusive: the fifth, sixth, seventh and eight ranges of said township from lot No. 51 inclusive; the ninth, tenth and eleventh ranges of the same township from lot No. 10 exclusive as far as and comprising lot No. 40, under the same name as the parish bears.

SCHOOL COMMISSIONERS.

It has pleased His Excellency the Lieutenant-Governor in Council to name the following gentlemen as School Commissioners, namely:

- County of Charlevoix.—Malbaie: Pamphon Hubert Cimon, Esq.
 County of Pontiac.—Chichester: Messrs. James McCool, Bryan Golden, James Holden, Bernard Burns, and John Stodes.
 County of Maskinongé.—Parish of Rivière du Loup: M. Antoine Gravelle.
 County of Beauce.—Ste. Marie: M. Antoine Garant.
 County of Témiscouata.—St. Edward de Frazerville: George Pelletier, Esq., and M. Ferdinand Chamberland.
 County of Rimouski.—Village of Rimouski: Revd. M. Ferdinand Laliberté.
 County of Dorchester.—St. Malachy: Revd. M. William Richardson.
 County of Gaspé.—Rivière-au-Renard: Revd. M. François-Xavier Bossé.
 County of Chicoutimi.—Village of Bagotville: Revd. M. Narcisse Gauvin.
 County of Terrebonne.—Ste. Marguerite of Wexford: Messrs. Octave Pilon, Dominique Robert, Isidore Legault, Eloi Beauchamp, Isidore Miron.
 County of Arthabaska.—Chester West: Messrs. Olivier Leblanc and Joseph Roberge.
 County of Nicolet.—Ste. Gertrude: M. Charles Leblanc.

SCHOOL TRUSTEES.

- County of Drummond.—Grantam: Revd. M. F. G. B. Ailnott, and Alexander Lackey and Thomas Badham, Esqs.
 County of Ottawa.—Masham: M. Emilie Legros.
 County of Portneuf.—Portneuf: M. George Watton.

JOURNAL OF EDUCATION.

QUEBEC, PROVINCE OF QUEBEC, JANUARY, 1866.

Laval Normal School.

The following address should have appeared in a previous number but was unintentionally overlooked.

Mr. l'Abbé Chandonnet, whose arrival from Europe has already been announced, on entering upon his duties as Principal of this School, was presented with the following address of welcome from the Professors and Pupil-Teachers of the Normal School, showing a just appreciation of his talents and character, hitherto.

Address presented to Mr. l'Abbé T. A. Chandonnet Principal of the Laval Normal School, by Messrs. The Professors and Pupil-Teachers of the Institution.

Rev. Principal,

Since the inauguration of the Laval Normal School it has lost its first two Directors. However much the departure of each may have caused us to regret, we cannot but bless the hand of Providence, and take some personal pride, in the promotion of the Rev. Messrs. Horan and Langevin to the Episcopal Sees of Kingston and Rimouski, because such elevations were at once an honor to these venerable priests, to the Canadian Clergy in general, and to the Laval Normal School in particular.

We are happy and proud, Sir, of your nomination to the Post of Principal of this Institution. We believe it, moreover, to be our duty to offer to His Grace, The Lord Archbishop, as well as to the Government of the Province of Quebec, our humble and sincere thanks for the judicious choice these high authorities have made in your person.

We know that, in the Halls of the College, at first, then as Professor in the Seminary of Quebec and Director of the Students of Laval University, you have at all times faithfully and honorably discharged the duties devolving upon your position.

Neither can we forget, that in your recent sojourn at Rome you have made a name for the French Canadian, and left a lasting and favorable impression of him. We feel an honorable pride in recounting to ourselves, the laurels won by you in the most celebrated Institutions of the Eternal City, because in them you reflect an honor on your Canadian Countrymen of which they may justly feel proud.

In conclusion, Rev. Principal, permit us, the Professors and Pupil-Teachers of the Laval Normal School, to bid you a cordial welcome.

Mr. l'Abbé Chandonnet responded impromptu and very appropriately.

Geographical and Topographical, &c.

THE PARKS OF COLORADO.

The San Luis Park.—The San Luis park is readily entered at the extreme north through the Poncho pass, penetrating the Cordillera from the Arkansas river. This park, of elliptical form and immense dimensions, is enveloped between the Cordillera and Sierra Mimbres. It has its extreme northern point between these two Sierras, where they separate by a sharp angle and diverge: the former to the southeast, the latter to the southwest. The latitude of the Poncho pass is 38° 30', the longitude 106°. It is one hundred and twenty-five miles southwest from Denver, and thirty-seven miles due west from Canyon City.

Emerging from the Poncho pass, the waters begin to gather and form the San Luis river. This flows to the south through a valley of great beauty, which rapidly widens to the right and left. On the east flank the Cordillera ascends abruptly and continuously, without any foot hills, to a sharp, snowy summit; on the west, foot hills and secondary mountains, rising one above the other, entangle the whole space to the Sierra Mimbres.

The Sawatch river has its source on the inner (eastern) flank of the Sierra Mimbres, about sixty miles south of its angle of divergence from the Cordillera, and by a course nearly east converges toward the lower San Luis river. It enters upon the park by a similar valley. These two valleys expand into one another around this mass of foot hills, fusing into the open park, whose centre is here occupied by the San Luis lake, into which the two rivers converge and discharge their waters.

The San Luis lake, extending south from the point of the foot hills, occupies the centre of the park for sixty miles, forming a bowl without any outlet to its waters. It is encircled by immense saturated savannas of luxuriant grass. Its water surface expands over this savanna during the season of the melting snows upon the Sierras and shrinks when the season of evaporation returns. From the flanks of the Cordillera on the east, at intervals of six or eight miles asunder, and at very equal distances, fourteen streams, other than the San Luis, descend and converge into the San Luis lake. The belt of sloping plain be-

tween the mountains and the lake, traversed by so many parallel streams, bordered by meadows and groves of cottonwood trees, has from this feature the name "Los Alamosos." It is sixty miles in length and twenty wide. On the opposite (western) side, from the flank of the Sierra Mimbres, similar streams, known as the Sawatch, the Carnero, and the Garetta, descend from the west into the lake.

The confluent streams thus converging into the San Luis lake are nineteen in number. The area thus occupied by this isolated lake and drained into it by its converging affluents, forming distinctly the northern section of the park, and being one-third of its whole surface, is classified under the general name of "Rincon."

Advancing onward to the south, along the west edge of the plains, ten miles from the Garetta, the Rio del Norte issues from its mountain gorge. Its source is in the perpetual snows of the parks of San Juan, the local name given to this stupendous culmination of the Sierra Mimbres. The Del Norte flows from its extreme source due east one hundred and fifty miles, and having reached the longitudinal middle of the park turns abruptly south and bisecting the park for perhaps one hundred and fifty miles, passed beyond its rim in its course to the Gulf of Mexico. All the streams descending from the enveloping Sierras (other than the Alamosos) converge into it their tributary waters. On the west come in successively the Pintada, the Rio del Gata, the Rio de la Gata, the Conejos, the San Antonio, and the Pieda. These streams, six or eight miles asunder, parallel, equidistant, fed by the snows of the Sierra Mimbres, have abundant waters, very fertile areas of land, and are all of the very highest order of beauty.

Advancing again from the Rincon, at the eastern edge of the plain along the base of the Cordillera, the prodigious conical mass of the Sierra Blanca protrudes like a vast hemisphere into the plain and blocks the vision to the direct south. The road describes the arc of a semi-circle around its base for thirty miles, and reaches Fort Garland.

In the immediate vicinity of Fort Garland, the three large streams, the Yuta, Sangre de Christo, and the Trenchera, descend from the Cordillera, converge, unite a few miles west, and blending themselves in the Trenchera, flow west, twenty-four miles into the Rio del Norte. The line of the snowy Cordillera, hidden behind the bulk of the Sierra Blanca, here again reveals itself pursuing its regular south-southeast course and direction. Fourteen miles south is reached the town of San Luis, upon the Calbra river; seventeen miles further is the town of Costilla upon the Costilla river; fifteen miles further the town of Rito Colorado is reached; eighteen miles onward is the Arroyo Hondo; (between these is the San Christova;) from the Arroyo Hondo to Taos is fourteen miles; twenty miles beyond Taos is the mountain chain whose circle toward the west forms the southern mountain barrier which encloses the San Luis park in that direction.

The San Luis park is then an immense elliptical bowl, the bed of a primeval sea which has been drained; its bottom, smooth as water surface and concave, is 9,400 square miles in area. It is watered by thirty-five mountain streams, which, descending from the encircling crests of snow, converge, nineteen into the San Luis lake, the rest into the Rio del Norte. An extraordinary symmetry of configuration is its prominent feature. The scenery, everywhere sublime, has the everchanging variety of the kaleidoscope. Entirely around the edge of the plain, and closing the junction of the plain with the mountain foot, runs a smooth glacis, exactly resembling the sea beach, which accompanies the conjunction of the land with the ocean. From this beach rise continuously all around the horizon the great mountains, elevating their heads above the line of perpetual snow. On the eastern side the escarpment of the Cordillera rises rapidly, and is abrupt; on the western side the crest of the Sierra Mimbres is more remote, having the interval filled with ridges, lessening in altitude as they descend to the plain of the park. This continuous shelving flank of the Sierras, completing a perfect amphitheatre, has a

superficial area equal to that of the level plain which it envelops, and gives to the whole enclosure within the encircling band of snow an area of 18,000 square miles. At an elevation of five feet above the plain a level line upon the mountain wall marks granite and the cessation of arborescence, above which naked granite and snow alone are seen. To one who ascends to this elevation at any point, the whole interior of this prodigious amphitheatre is scanned by the eye and swept in at a single glance. Aided by a glass, the smallest objects scattered over the immense elliptical area beneath are discernible through the limpid, brilliant, and translucent atmosphere. Two facts impress themselves upon the senses: the perfect symmetry of configuration in nature and the intense variety in the forms and splendor of the landscape. The colors of the sky and atmosphere are intensely vivid and gorgeous; the dissolving tints of light and shade are forever interchanging; they are as infinite as are the altering angles of the solar rays in their diurnal circuit.

The average elevation of the plain above the sea level is 6,400 feet. The highest peaks have an altitude of 16,000 feet above the sea. In the serrated rim of the park, as seen from the plain, projected against the canopy, are discernible seventeen peaks, at very equal distances one from another. Each one differs from all the rest in some peculiarity of shape and position. Each one identifies itself by some striking beauty. From the snows of each one descends some considerable river, as well within the park as outward down the external mountain bank.

We recognize, therefore, in the San Luis Park an immense elliptical basin enveloping the sources of the Rio Bravo del Norte. It is isolated in the heart of the continent, twelve hundred miles from the sea. It is morticed, as it were, into the midst of the vast mountain bulk, where, rising gradually from the oceans, the highest altitude and amplitude of the continent is attained. This park spreads its plain from 36° to $38^{\circ} 30'$, and is bisected by the 106th meridian. Its greatest length is 210 miles; its greatest width is 100; its aggregate approximate area is 18,000 square miles.

Such being the geographical position, altitude, and peculiar unique configuration, these features suggest the inquiry into parallel peculiarities of meteorology, geology, physical structure, agriculture, mineralogy, and the economy of labor.

The American people have heretofore developed their social system exclusively on the borders of the two oceans, and within the maritime valleys of moderate altitude, having navigation and an atmosphere influenced by the sea. To them, then, the contrast is complete in every feature, in these high and remote altitudes beyond all influence of the ocean, and specially continental.

There is an identity between the "Valley or Park of the City of Mexico" and the San Luis park which ought to be here mentioned. They are similar, twin basins of the great plateau, classifying together and alike in the physical structure of the continent. Mexico is in latitude 20° , longitude 99° , and at 7,500 of altitude. The width of the continent is here 575 miles (from ocean to ocean,) and the divergence of the Cordilleras is 275 miles, which is here the width of 8,500 miles between the oceans; the Cordilleras have diverged 1,200 miles asunder, and the plateau has widened the same dimensions. In harmony with this great expansion of the continent are all the details of its interior structure. The "Park of the City of Mexico" is but one-tenth in size and grandeur as compared and contrasted with the San Luis park. Of identical anatomy, the former is a pigmy, the latter a giant. The similitude as component parts of the mountain anatomy is in all respects absolute, as is also true of the other parks, which occupy longitudinally the center of the State of Colorado.

Meteorology.—The atmospheric condition of the San Luis park, like its scenery, is one of constant brilliancy, both by day and night, obeying steady laws, yet alternating with a kind of playfully methodical fickleness. There are no prolonged vernal or autumnal seasons. Summer and winter divide the year. Both are characterized by mildness of temperature. After the

autumnal equinox the snows begin to accumulate upon the mountains. After the vernal equinox they dissolve. The formation of light clouds upon the crest of the Sierras is incessant. The meridian sun retains its vitalizing heat around the year; at midnight prevails a corresponding tonic coolness. The clouds are wafted away by the steady atmospheric currents coming from the west. They rarely interrupt the sunshine, but refracting his rays, imbue the canopy with a shining silver light, at once intense and brilliant. The atmosphere and climate are essentially continental, being uninterruptedly salubrious, brilliant, and tonic.

The flanks of the great mountains, bathed by the embrace of these irrigating clouds, are clad with dense forests of pine, fir, spruce, hemlock, aspen, oak, cedar, pinon, and a variety of smaller fruit trees and shrubs, which protect the sources of springs and running rivulets. Among the forests alternate mountain meadows of luxuriant and nutritious grasses. The ascending clouds, rarely condensed, furnish little irritation at the depressed elevation of the plains, which are destitute of timber, but clothed in grass. These delicate grasses, growing rapidly during the annual melting of the snows, cure into hay as the aridity of the atmosphere returns. They form perennial pastures, and supply the winter food of the aboriginal cattle, every where indigenous and abundant.

An infinite variety in temper and temperature is suggested as flowing from close juxtaposition of extreme altitudes and depressions: permanent snows, running rivers, and the concentric courses of the mountains and rivers. Storms of rain and wind are neither frequent nor lasting. The air is uniformly dry, having a racy freshness and exhilarating taste. A soothing serenity is the prevailing impression upon those who live perpetually exposed to the seasons. Mud is never anywhere or at any time seen. Moderation and concord appear to result from the presence and contact of elements so various.

The critical conclusions to which a rigid study of nature brings the scrutinizing mind are the reverse of first impressions. The multitudinous variety of nature adjusts itself with a delicate harmony which brings into healthy action all the industrial energies. There is no use for the practice of professional pharmacy. Chronic health and longevity characterize animal life. The envelope of cloud-compelling peaks, the seclusion from the oceans, the rarity of the air inhaled, and the absence of humidity disinfect the earth, the water, and the atmosphere of exhalations and miasmas. Health, sound and uninterrupted, stimulate and sustain a high tone of mental and physical energy. All of these are banished, as it were, by the perpetual brilliancy and salubrity of the atmosphere and landscape, whose unfailling beauty and tonic taste stimulate and invite the physical and mental energies to perpetual activity.

Geology and minerals.—As a geological basin, the San Luis park is in the highest degree interesting and remarkable. It is found to contain, intermingled and in order, a complete epitome of all the elements of which geological science and research take note. Its intra-mural locality between the primeval crests of the Cordillera, on the east, and the Sierra Mimbres, (here called the "San Juan,") on the west, multiplies this variety indefinitely. These primary Sierras, separated by the park, face one another in full sight, as they rear their flanks from the opposite edges of the concave plain. The successive periods and stupendous forces which have expended themselves to produce what is in sight, and then subsided to an eternal rest, each particularly, manifests itself. The comb of the Sierra presents the prodigious plates of primeval porphyry driven up, as the subsoil of a furrow, from the lowest terrestrial crust and protruding their vertical edges toward the sky.

This summit yielding to the corroding forces, presents a wedge towards the canopy; is arranged in peaks resembling the teeth of a saw; is above all arborescence, and is either clad in perpetual snow, or is bald rock.

Against this is lapped perpendicularly the second stratum, less by many thousand feet in altitude, its top forming a brim or

bench. This bench, being the rounded edge of the erupted stratum, softer than the first and receiving the debris from above, has a deep, fertile soil, a luxuriant alpine vegetation, forests of fir and aspen, and is the highest region of arborescence and vegetable growth.

This is the region of rocks where the metals, especially gold and silver, abound in crevices charged and infused with the richest ores. It is from hence that the gold of the gulches is disintegrated and descends. Here are springs of water and the sources of rivers. The timber is excellent and the pastures of various grasses luxuriant and inexhaustible. Swept by ascending currents of vapor, irrigation is constant. This elevated bench is a permanent characteristic of the mountain flank, continuous as the continent itself; a colossal staircase whose steps are themselves of mountain magnitude. It is here, at these surfaces of contact of the erupted plates of the lowest terrestrial crust, that the thread of the "gold belt" is revealed and found. From this thread, as from a core outward, the precious metals taper in quantity and become diluted in the immensity of the rocks, as a hill of rock salt disappears to the eye, dissolved in the immensity of the ocean.

The top of this continuous bench is undulating, broad, and occasionally crossed by transverse ridges and the chasms of water-courses. The front flank of this bench forms the stupendous escarpment of the mountains, everywhere lofty and precipitous. It is cut through by innumerable streams, up whose gorges access to the upper regions is attained, and the internal contents, the intestines, as it were, of the rocks are revealed to sight and search.—*American Journal of Sciences and Arts.*

(To be Continued.)

Political Economy.

OUR FOREIGN EXCHANGES SINCE 1861.

In order to estimate the importance of the change in our financial relations with Europe effected by the war, it is necessary to trace the course of our foreign trade during the last five or six years. The loss of the cotton crop, from the first outbreak of the war, involved an important diminution of our ability to pay foreign products. This was naturally anticipated by our importers, and the importations were largely reduced; but the curtailment of our imports, was not at all proportionate to the reduction in the exports. This was due in part to the fact that a large number of our producing population was taken into the army, thereby lessening the national yield of products; while, owing to the war consumption, we required more than the average supply of goods. Among the people also there was no disposition to economise; but, on the contrary, the effect of the increasing flood of paper money was to encourage the illusion among all of great prosperity, and thereby induce unusually large expenditures. Hence, although the war shut us off from communication with one third the population of the country, the importations were reduced only about 18 per cent. during the first year, and 24 per cent. the second year; while in the third, they were within \$5,000,000 of the figures of 1860. The exports, however, from being 400 millions in 1859-60, fell to 226 millions (gold value) in 1861-62, and even to 209 millions in 1864-65. Owing to the circumstance that the Custom House entries of domestic produce are given in currency, it is difficult to ascertain the gold value of the exports since the suspension of specie payments. By, however, carefully averaging the price of gold for each year, the value of this portion of the exports may be ascertained with a fair approximation to accuracy.

The average yearly price of gold has been about as follows: in the fiscal year 1861-2, 102; in 1862-3, 146; in 1863-4, 160; in 1864-5, 200, and in 1865-6, 140; for the year 1866-7 it is unnecessary to strike an average, as in the official returns these exports are reduced to gold values. Taking these then as the

correct averages, we will find that the gold value of the exports of the last six years compare as follows with the imports.

Fiscal year,	Imports, (specie included.)	Exports, (specie included)	Excess of imports
1861-2.....	\$275,300,000	\$226,300,000	\$49,000,000
1862-3.....	252,900,090	243,600,000	9,300,000
1863-4.....	329,500,000	220,400,000	109,100,000
1864-5.....	234,400,060	209,400,000	25,000,000
1865-6.....	437,600,000	430,600,000	7,000,000
1866-7.....	412,200,000	355,200,000	57,000,000
Total.....	1,941,900,000	1,685,500,000	256,400,000
Average.....	323,600,000	280,900,000	42,700,000

According to these figures it appears that, for the six years ending on the 30th of June last, the trade balance against us was \$256,000,000 in gold. We have no doubt that this exhibit omits an important amount of the exports, inasmuch as the shippers' manifests, as presented to the Custom House, are generally more or less incomplete. It is, however, impossible to form any reliable estimate of the proportion thus excluded from the official returns. But, on the other hand, the high tariffs of late years have induced a considerable amount of smuggling, and have tempted importers, in many cases, to invoice their goods below the true value. The Secretary of the Treasury, in the last annual report, estimates that for smuggling, undervaluation of invoices and cost of transportation paid to foreign shipowners, 20 per cent. at least should be added to the imports. With due respect to official opinion, we are disposed to regard this estimate as somewhat exaggerated, but be this as it may, it may perhaps be safely assumed that the under-statement of the imports fully sets off the omissions in the entries of exports; so that the above balance may perhaps be taken as about representing the result of our trading account with the rest of the world. To this trading balance, however, must be added, an important amount for interest occurring upon foreign investments in this country. At the beginning of these war, the aggregate of our State, municipal, railroad and other securities held in foreign countries was estimated to be about \$250,000,000; which some good judges believe, has since, through the shipment of bonds, been more than trebled. Assuming the accuracy of these figures, it could scarcely be supposed that the interest for the six years would be less than \$125,000,000. Adding then, this interest account to the adverse trading balance, it would appear that, for the six years, we have incurred a total foreign indebtedness of \$380,000,000. In this estimate we make no allowance for profits upon the invoiced value of our exports, nor for the sales of American vessels to foreigners pending the dangers from Southern privateers, so that we may perhaps reduce this total to \$350,000,000 as the best attainable estimate of the net adverse balance accruing on trading and interest accounts since July 1, 1861.

These figures may appear startling, and may seem to countenance the idea entertained in some quarters that there is outstanding against this country a large open balance ready to be called home upon any financial or political emergency in Europe, and threatening an embarrassing drain of gold. An idea of this sort has been the nightmare of the Gold Room, and has created much, as it appears to us, unnecessary apprehension. We have little question but that nearly the whole of this balance has been set off by securities. It is not a supposition at all accordant with sound banking, much less with the caution with which financial operations have been conducted in Europe for the last eighteen months, to imagine that a balance running far up into the tens of millions would be allowed to accumulate here uncovered. With the constant danger of war in Europe, and the heavy losses connected with the cotton trade, it may be taken for granted that European bankers would not allow unusually large balances to remain here in the hands of their agents. Nor is there any palpable evidence that the foreign bankers of this city hold any such extraordinary balances as this supposition implies. If they

were under advances to any very extraordinary extent to importers, banks or bankers, surely there would be more tangible evidence of the fact than is any where apparent. Nor is there any necessity for resorting to this extraordinary supposition; for it is not unreasonable to estimate that the Government and other securities sent abroad have realised sufficient to offset the balance against us. It is now very generally estimated among foreign bankers that the amount of United States bonds held in Europe cannot well be less than \$550,000,000. Of the whole issue of \$515,000,000 of Five-Twenties of 1862, probably there are at least \$450,000,000 in foreign hands, judging from the scarcity of the bonds in this market, notwithstanding they command 3@4 per cent more than other 6 per cent. bonds; and it cannot be an outside estimate to suppose that of Sixes of 1881, and Five-Twenties of 1864 and 1865 there is \$100,000,000, or more held abroad. If to this \$550,000,000 of Government bonds we add say \$50,000,000, as a probable estimate for all other securities exported during and since the war, it would appear not improbable that we have sent out, as an offset to this balance, about \$600,000,000 of securities. What the export of these securities has realised we have no means of knowing. In order to cover the adverse balance, they would require to have realised upon an average sixty cents on the dollar, in gold; which is perhaps just about the figure at which most parties familiar with the course of the foreign bond market would estimate the average cost of our securities to European holders.

We make no pretensions to precise accuracy in these estimates, for, in the absence of records, precision is out of the question. If we have succeeded in giving very probable guesses, then we have contributed something toward divesting a very important question of much vagueness and misapprehension.—*Hunts Merchants' Magazine.*

SCIENCE

Animal Electricity.

To the agency of friction, the amber of the ancients, the chemical action of modern voltaism, the mysterious properties of natural and artificial magnets or loadstones, and that peculiar vital principle inherent in certain animals, are due all the effects generally included in the comprehensive term electricity. If to these primary causes we add those of terrestrial currents and inequality of temperature, we provide, at least in theory, for all those atmospheric phenomena hitherto inexplicable upon any known data. If, as a certain eminent ecclesiastic remarked, "chance is a word to express our own ignorance," what a "chance" electricity must be. It is to the *savant* and the philosopher what "heart disease" is to the coroner and the faculty. Exactly a century ago galvanism was first discovered, and the term was applied to describe a species of electrical excitation, presumed at that time to differ materially in its origin from all other similar effects. Evidently the cause was referred to some muscular agency, which produced a peculiar sensation or taste when two dissimilar metals were applied, one upon the upper and the other upon the lower surface of the tongue. Sulzer who made this discovery, ascribed it to some vibratory motion produced in the nerves of the tongue, naturally a highly sensitive organ, and inferior in that respect only to the eye. Galvani, whose name is familiar with the celebrated experiments upon the limbs of frogs freshly killed, more fully developed this theory, and was the father of a new school, which, while recognizing the cause of these post-mortem effects to be connected with electricity, yet affirmed that they were due to some especial modification of that unknown agent, residing solely in the animal system, and consequently bestowed upon it the appropriate name of animal electricity. The celebrated Volta was the first to successfully dispute this view of the subject, and to establish the identity of the origin of galvanic and electric phenomena. Recent experiments have confirmed the theory that animal electricity does not owe

its origin to the formerly imagined action of the nerves or muscles, but emanates directly from a purely chemical source, the exciting cause being generated by the contact of the air with the incipient decomposition of the freshly-killed animal. Bearing in mind that a liquid, but very slightly saline, in contact with animal substance is an electrometer, it is easy to perceive that the so-called muscular current is nothing more than the current produced by their contact. To put beyond a doubt the question that a live muscle would generate electricity, which it could not produce when dead, contact has been made between the muscles of a live animal and the wires of a galvanometer, without the latter evincing the slightest sign of an electrical current. Moreover, if a portion of muscle be separated from the body of an animal freshly killed, and placed in communication with a galvanometer, a feeble degree of electricity is demonstrated. According to the opinion of a member of l'Academie Française, this is due to the influence of oxygen upon the flesh, a cause always existing when the muscles retain their normal state of irritability. Assuming that animal electricity was due to the cause surmised by Galvani, the evidence of the current would cease so soon as the muscles become completely inert, or, so to speak, completely dead. But the reverse is the fact. The more decomposed the flesh becomes the stronger are the advances of its electrical condition, and when it has acquired a state of almost total putridity it imparts the maximum deviation to the astatic needle. That the presence of a saline liquid is necessary to these electrical effects is proved convincingly by several circumstances. One is that meat newly salted becomes electrical in proportion to the penetration of the solution, and the other that cured meats, whether beef, pork, or fish, evince a high state of electrical development. The blood of a living animal is altogether destitute of electrical excitation, but becomes capable of affecting the galvanometer so soon as the animal is killed, and its power increases with the putrefaction of the body. A small addition of common salt to the blood immediately increases its electrical sensibility. If the epidermis of an animal be removed the under layers of cuticle are highly electrical, as experiments upon frogs have demonstrated, and this condition is still further augmented by the addition of a saline solution. From these results we are justified in assuming that animal electricity in its original symptoms is a delusion, and that without the intervention of some slightly saline liquid the nerves and muscles are *per se*, powerless to afford the smallest evidence of an electrical current. Unless a chemical action can be set up there is nothing to indicate the presence of that vital muscular agency which the first experiments in connection with the subject led the older philosopher to insist upon and adhere to. The animal current, which they so fondly preponderated and believed in, is simply an ordinary electrical current produced chemically by the contact of a saline solution with animal matter, in which combination the salt acts the part of the electrometer. Adopting this view of the question it is easy to perceive that the development of animal electricity in invalids and diseased organs, instead of being due to the cause originally entertained, is solely the consequence of chemical decomposition. Thus, for instance, the mucous membrane of the mouth becomes electrical in patients suffering under disease of the stomach or digestive organs, and strong evidence of it are manifested in malignant, cancerous, and other ulcers of a dangerous and fatal type. All animal excretions are electrical, and urine possesses this property in so remarkable a degree as to cause the needle of a galvanometer to make a complete revolution of the dial. The electricity of fishes results from an alkaline solution in the cells of the electric organs, and manifests itself very powerfully. All the effects of animal electricity may therefore be regarded as closely resembling those of fermentation and putrefaction, and to depend not upon any muscular or nervous hypothesis, but solely upon an incipient chemical decomposition in combination with chemical electrometers.—*The Engineer*.

ART.

Natural Qualities and Peculiarities of Glass.

This material is as old as reliable history. The fable which ascribes its invention or discovery to the accidental fusion of an alkali with seashore sand by a fire made by ship-wrecked Phœnician sailors is not worthy the degree of credence we usually yield to Pliny's relations. Glass beads and imitation gems have been found with Egyptian mummies which must have been interred over 3,000 years ago. In fact, at Thebes was discovered a glass bead of rare purity which had the name of a monarch inscribed upon it who lived 1,500 years before Christ. Glass lenses, bottles, and vases have been found in the ruins of Nineveh, and it is not improbable that glass was known long before it was manufactured into articles of use or ornament; for in the process of the reduction of metallic ores and in the baking of pottery of vitreous debris must have been noticed. According to Theophrastus the manufacture of glass was practiced 370 years B. C., and the processes of grinding, coloring, and gilding were then in use. Colored glass was used in church windows in the eighth century, and in the time of the crusades the art of ornamenting and decorating articles of glass was introduced from the East. Works were established at Murano, near Venice, and for a long period the Venetian glass was justly celebrated for its elegance. Many of the ornamented objects made in Venice have been lately reproduced; that known as the Venetian ball, so popular now for use as a paper weight, being an instance. They are made by combining pieces of colored glass to imitate flowers, etc., and introducing these into globes which are compressed or flattened upon the designs by the blower drawing in his breath and thus exhausting the air from the interior. The lens form of the envelope has the effect of magnifying the ornamental objects. Frosted glass is produced by dipping the hot glass, before blowing, into cold water, reheating it and blowing before the cracks on the exterior are closed by fusion. Probably the finest specimens of ornamented glass now made are those manufactured by the Bohemian peasantry. The cause of this excellence is partly the superiority of the materials existing in Bohemia and partly to the wonderful skill in manipulation attained by patient and constant practice.

Glass is a chemical combination of silica, potash, lead, lime, alumina, and other substances intended to produce silicates of these bases. The colors are produced by metallic oxides. The specific gravity of glass varies with its composition from 2.4 to 3.6. When cooled it is exceedingly brittle, but when softened by heat is very tenacious and may be moulded at will. It can be drawn into threads of extreme tenuity, and in this form has been woven into silk, producing an elegant effect. These threads are quite elastic, as is also a solid globe; even hollow balls have been dropped upon an anvil from a height of ten feet, when they would rebound to at least one-third of that height without sustaining a fracture. This quality of elasticity when in the form of thread has lately given rise to the story of an attempt by a French chemist to unite masses of these elastic threads by partial fusion, with the object of producing a flexible glass. The project is too ridiculous to merit serious remark. When glass ceases to be brittle it will probably lose some of most valuable properties, which seem to be inseparable from this objectionable quality.—*Scientific American*.

Reproduction of Designs on Glass.

The decoration of porcelain with designs embracing every grade of excellence, and at a very trifling cost, compared with the beauty of the products, has long been practiced in this and other countries. But, hitherto, glass appeared to be incapable of receiving any kind of ornamentation except by methods tedious, difficult and expensive. It is likely, however, that such is now no longer the case, as a process has been invented in France, by means of which engravings are transferred to glass with nearly the same facility as they have hitherto been transferred to ceramic products. In the case of porcelain, fine lined copper plate

engravings on tissue paper are applied to the surface of the article, the engraved side inwards; and the paper having been washed away, the lines of the engraving which still adhere to the porcelain are permanently attached by firing and glazing. In the case of glass, the process requires to be modified; a fine lined engraving would not answer, and hence, one having lines of sufficient depth is used. Also, stearates and oleates are added to the silicates and borosilicates, which are intended to support, or to fuse the coloured or colouring oxides, for the purposes of giving to the enamels the thickness which glass requires them to have; and a solution of resin in ether or benzine is added. The engravings on paper are produced by means of engraved rollers; after having been treated very much in the same way as with porcelain, the glass is placed in the furnace, and thus the most beautiful results are obtained with certainty, ease, and economy. —*Intellectual Observer.*

Notices of Books Received.

A COMPLETE ETYMOLOGY OF THE ENGLISH LANGUAGE—containing the Anglo-Saxon, French, Dutch, German, Welsh, Danish, Gothic, Italian, Latin and Greek Roots, and the English words derived therefore accurately spelled, accented, and defined; By W. W. Smith. New York, A. S. Barnes & Co.

A FOURTEEN WEEKS' COURSE IN CHEMISTRY; By J. Dorman Steele. A. S. Barnes & Co., New York.

The above two works may be procured from Dawson Brothers, Montreal.

BIBLIOTHECA CANADENSIS, or a *Manual of Canadian Literature*; By Henry J. Morgan—1867, Ottawa, printed by G. E. Desbarats. 8vo, pp. 411.

This must be regarded as a timely and otherwise valuable contribution to Canadian literature, the need of which at the present time is clearly shewn by the author in his prefatory remarks. Taking into account the labor and difficulty necessarily attendant on the preparation of such a work as well as its usefulness and general excellence, Mr Morgan has certainly done himself great credit, and it is to be hoped he will receive the recompense he is justly entitled to through an extensive sale of the book.

THE NEW DOMINION MONTHLY, No. 3 for December, 1867; printed and published by John Dougall & Son, Montreal.

LIBER CANTABRIGIENSIS, and A BRIEF ACCOUNT OF THE SCHOLARSHIPS AND EXHIBITIONS open to Competition in the University of Cambridge, with Specimens of the Examination Papers; By Robert Potts, M.A., Trinity College, Cambridge. London, Longman & Co., 1867.

MR POTTS' WORKS.—In our list of books received, the titles are given of two works published in England by Mr Robert Potts of Cambridge. Of these works one thousand copies have been sent to Canada by the Reverend Author for gratuitous distribution amongst the universities and higher educational institutions, and his wishes so far have been carried into effect through the agency of the Departments of Public Instruction of the Provinces of Ontario and Quebec; the object being to make known to students and others in this country the nature and amount of the scholarships exhibitions and prizes afforded in the great English universities and public schools. It is stated that in Cambridge alone those aids in academical education, open to competition in the different colleges, amount in annual value to about £40,000 sterling, in addition to university scholarships and prizes of upwards of £2000 a year. The author summarily characterizes these as "aids afforded to poor students, encouragements offered to diligent students, and rewards conferred on successful students." It remains to be seen whether or not these works of the learned and benevolent gentleman will have the effect of inducing any number of our Canadian youth to go to England for the purpose of availing themselves of the opportunities set forth; but, however, this may be, it is to be hoped, that the lucid though brief historical notices which he has given of the origin of so many endowments in aid of learning, and of the enlightened views, noble sentiments, and generosity of their founders may not fail in exercising some influence at least upon the minds of wealthy individuals on this side of the Atlantic in behalf of public education.

Nearly one-third of the book "Liber Cantabrigiensis" is taken up with a series of 700 "Aphorisms and Maxims," of which the author thus writes in his preface:

"It is believed that those students who are sensible of their res-

ponsibility for the use and improvement of their time and talents may be influenced by encouragements and rewards in proceeding through their course of disciplinary studies; and that those who are resolved to avoid failure and secure success in their preparation for the duties of life, may find some useful suggestions for that purpose in the collection of maxims, aphorisms, and extracts which form the prefix to this volume. They are drawn from the works of men, some of them the most distinguished in their generation, whose writings form a rich storehouse of intellectual treasures. In making the selection, if the compiler has succeeded in bringing great truths and sound principles before the minds of learners in a plain and intelligible form, he has not failed in this portion of his task."

Mr Potts expresses himself respecting the teacher's vocation in a manner that adds value to his other remarks about education. He quotes the sentiment of Erasmus that the occupation of those whose business it is to "season" youth in learning and religion, and raise up men for the service of their country is "in itself really great and honorable." He says of Dr. Samuel Johnson that he justly observed "not to name the school or the masters of men illustrious for literature, is a kind of historical fraud by which honest fame is injuriously diminished," and adds "the formation of national character depends greatly on the principles, ability, and energy of schoolmasters."

MONTHLY SUMMARY.

EDUCATIONAL INTELLIGENCE.

—The Report of the Irish Commissioners of National Education for the last year shews an increase in the schools compared with 1865, the numbers being 6372 and 6453 respectively, while the number of scholars has decreased from 922,084 to 910,819. This decrease is ascribed to emigration, though the Commissioners allude to "other causes in 1866 calculated to affect the attendance." One model and fifty-one ordinary school-houses are being erected, and twelve vested schools were opened during the year. On the other hand, seventy-five were struck off the roll. The Commissioners received 226 applications for grants to new schools, of which they complied with 159. 34 of the patrons or managers of these new schools were Protestants, 107 Roman Catholics, 12 Presbyterians, and 6 of other denominations. There are 171,279 Protestant pupils on the rolls, and of these 152,412, or 89 per cent., attend mixed schools. A propos of the above, we find in a paper issued from the office of National Education in Dublin, a plan therein submitted by the Commissioners to the Government for the introduction of Classics and French into the National Schools. This is a movement in the right direction; and we trust that the framers or doctors of the Revised Code will also see their way to imitate the example, and to pay for Geography and History, Latin and French, as well as for the mere elements. Better still that there were a National System, so arranged that the poorest boy, if he has the ability, should be able to get the highest education which our country can furnish. There should be access, through intellectual cultivation and moral excellence, from the lowest ranks of society to the highest. And there should be a regular and systematic attempt to give full culture to all the mental faculties which arise within the community, so that poverty may not prevent the boy of high mental endowments from giving the full powers of his mind to the good of his country.—*Journal of Education.*

Education in France.—The working-men of France are deriving great educational benefits from a system of night-schools in successful operation in that country. Over thirty thousand of these schools have been opened, and some forty thousand teachers furnish gratuitous instruction to 823,000 adult scholars. Fully one-third of these scholars had been entirely without educational advantages prior to the opening of these schools, and they would undoubtedly have lived and died in ignorance but for this means of getting knowledge of the rudiments of education. The interest which the people have taken in attending these schools bears witness to the strong desire for knowledge which characterizes humanity in all stations, and the improvement that has been made by attending upon these schools shows that it is "never too late to learn." At a late competitive examination in written compositions, 5,168 adult laborers and mechanics entered the lists, and 1,408 of them prepared compositions that were perfectly correct in orthography, syntax, and general arrangement. Aside from the literary advantages of these schools, their moral effect is excellent, and the President of the French Corps Législatif lately bore witness to the great falling-off in drunkenness and quarrelling among foundry and other workmen in consequence of the school influences.

No government can afford to have its subjects or citizens kept in ignorance. Men's minds have been given them for use and improvement; and a government does not answer one of the first purposes of a government until it provides for popular education. A good educational system is a better source of national strength, and a surer means, of national defence, than a large standing army.—*United Presbyterian.*

Primary Education in England—The statistical Blue-book lately published by the British Board of Trade exhibits in a tabular form the present state of primary education in Great Britain. From this table we learn that the number of schools inspected has increased from 3,825 in 1854 to 8,753 in 1866, the number of children who can be accommodated from 588,000 to 1,724,000, the average number of children in attendance from 461,000 to 1,082,000, and the number of children present at inspection from 473,000 to 1,287,000.

There are also a large number of schools throughout the kingdom which do not receive Government assistance and are not visited by the inspectors. The number of children in such schools is probably less than that in the schools of the other class.

From the same source we learn that the expenditure by the state for public education has increased from £189,000 in 1852 to £813,000 in 1861. In 1863 the grants under the Revised Code commenced, and amounted to £83,000 out of a total expenditure of £721,000. In 1866 the grants under the Revised Code had advanced to £402,000, out of a total expenditure of £649,000.

Since 1852 the population of Great Britain has increased by two and a half millions. The total population is more than twenty-four and a half millions. It will be readily seen that the appliances for educating the young Britons are inadequate, that they have not increased in the ratio of the increase of population, and that Mr Fawcett and his friends are quite right in agitating for a more efficient school system.

SCIENTIFIC INTELLIGENCE.

The Motor Clock of Greenwich Observatory.—The following passages occur in the report to the visitors: "This clock is compared and verified by an easy practical process. It maintains various clocks in sympathy with itself, it regulates clocks in London, sends signals through Britain, drops the Deal time-ball, fires guns at Newcastle and Shields (I think also at Sunderland), and puts communications in such a state that we can receive automatic reports from the signal-places as we may desire. I may, however, specially mention that daily signals are now sent to some places in Ireland; and that, during the expedition of the Great Eastern for laying down the Atlantic cable, time signals were sent on board twice a day, to enable her constantly to determine her longitude."

The Astronomer Royal reports that on 38 per cent of the days of observation, the error of the Houses of Parliament clock was below 1"; on 38 per cent, of days of observation, between 1" and 2"; on 21 per cent, between 2" and 3"; on 2 per cent, between 3" and 4"; on 1 per cent, between 4" and 5".

STATISTICAL.

Lake Superior Iron Mines.—The total product of the Lake Superior iron mines last year was 306,252 tons of ore. The reasons for the exceedingly rapid development of these mines since the year 1855 when the shipments of ore were 1,445 tons—are many and obvious. The deposits are immense, easily worked, and nearly free from those noxious elements which render the flux of most iron or ores difficult and expensive. None of the mines, moreover, are over thirty-five miles from cheap water transportation, while most of them are only fifteen or sixteen miles distant.

Minerals in Mexico.—In Mexico there exist 187 different kinds of minerals, among which are gold, silver, iron, copper, lead, zinc, mercury, tin, etc.

Borax.—A California paper says that the company engaged in taking out borax in Lake county, will soon be in condition to extract five tons of this article per day from the Borax Lake.

Pennsylvania Coal.—It is calculated that Pennsylvania contains coal enough to supply 20,000,000 tons annually for the next 650 years.

Marmora iron.—The Marmora iron mines in Canada, forty miles from Lake Ontario, have been purchased by Philadelphia capitalists. The purchase covers 23,000 acres, also the Cobourg and Peterboro railway. Ore from this mine has yielded from sixty to seventy per cent. of fine iron.

MEMORANDA.

Bromide of Potassium in Epilepsy.—M. Namias states in *Comptes Rendus* that bromide of Potassium, beginning with one gramme taken during the day in three doses, and increasing it to several grammes in twenty-four hours, diminishes the violence and the number of attacks.

Ophthalmic use of Sulphate of Soda.—M. D. de Luca states (*Comptes Rendus*) that the powder of crystallized sulphate of soda dropped in small quantities on the cornea, and allowed to dissolve in the fluids of that organ will, in the course of time remove opaque spots.

Disinfectants.—Mr. Crookes, says the *Medical Times*, has shown that the favorite disinfectant, chloride of lime, is about the least efficient of any of those substances reputed to possess disinfectant qualities. Chlorine itself is very little better, for if used in large enough quantities it will in time destroy the virus, but as it acts by way of oxydation, and as living

virus resists this longer than dead oxydizable matter, before the gas can attack a virus everything else that it can oxydize will be oxydized first.

And if when pure, chlorine is so slow of acting when adulterated with eighty per cent of lime, its value is proportionately less. In sulphurous and carbolic acid, on the other hand, there are substances absolutely destructive of every kind of living thing of low organization, such as cattle plague virus is supposed to be. These substances, besides destroying the virus, attack it at once, and arrest all putrefying tendency.

Engraving upon Glass.—The engraver is often at a loss for utensils to hold his acid, but Stalpa mentions that ordinary glass and porcelain vessels are protected from the action of the acid by paraffine. A thin coating of this material is easily given to a vessel by first of all carefully drying it, and then melting some paraffine in it, taking care to get the vessel rather hot; it must then be rapidly moved about to get the whole of the inner surface evenly covered, and the excess of the paraffine may then be poured out.

Vessels prepared in this way may be substituted for those of lead and gutta-percha.

How to stop the Flow of Blood.—It is not generally known that the blood, even from severe cuts, may be staunched by binding on the wound the fine dust of tea. After the flow has been staunch'd, laudanum may be applied with advantage.

MISCELLANEOUS INTELLIGENCE.

The Way to Health.—The only true way to health is that which common sense dictates to man. Live within the bounds of reason. Eat moderately, drink temperately, sleep regularly, avoid excess in anything, and preserve a conscience "void of offence." Some men eat themselves to death, some drink themselves to death, some wear out their lives by indolence, and some by over exertion, others are killed by the doctors, while not a few sink into the grave under the effects of vicious and beastly practices. All the medicines in creation are not worth a farthing to a man who is constantly and habitually violating the laws of his own nature. All the medical science in the world cannot save him from a premature grave. With a suicidal course of conduct, he is planting the seeds of decay in his own constitution, and accelerating the destruction of his own life.—*Scientific American*.

Causes of Acute Bronchitis.—In our climate, both forms of the disease are very common. The essential feature of the disease consists in an inflammation of the bronchial tubes, and is commonly produced by cold and moisture, applied generally or locally, as by means of damp clothing, or exposure to a cold, moist, variable atmosphere, especially, after the body has been overheated by exercise or crowded rooms, or the inhalation of metallic dust or gases. Dr. Charles T. Jackson, the distinguished chemist of Boston, nearly lost his life on one occasion by an attack of acute bronchitis, caused by the sudden inhalation of chlorine gas. Ipecac, in powder, when inhaled by some individuals, will cause bronchitis. The dust of newly cut hay, and the pollen of the rag weed, in some persons will produce the same effect; also the flowering of roses, and the inhalation of dust, exhaled from the foliage of growing plants and trees. Hooping cough is no doubt a certain form of bronchitis, induced by a specific morbid poison directly on the bronchial mucous membrane.

A very severe form of bronchitis often accompanies some of the eruptive fevers, measles, scarlatina, and small-pox, constituting a most dangerous and sometimes fatal complication. In measles, the recession of eruption is frequently followed by a great increase in the bronchial disorder, which is announced by the great increase of cough, and sudden oppressive dyspnoea. From the suddenness of the production and disappearance of the latter symptoms, which is occasionally observed in the cases, it has been suggested, that it is possible they may be rather congestive, than inflammatory, although if the congestion continue, bronchitis is the final result.

There are also many chronic diseases which may be said to favor the development of acute bronchitis, these are Bright's disease of the kidneys and diseases of the heart and lungs. It often occurs during the progress of pulmonary tuberculosis, and sometimes proves very fatal to the patient.—*Med. & Surg. Rep.*

Artificial Digestion.—A London physician, Dr. Marcet, has announced a process by which natural digestion is simulated by artificial means, and solid food may thereby be prepared for invalids. Dr. Marcet takes fifty-eight grains of muriatic acid having a specific gravity of 1.1496; fifteen grains of pepsine—the organic principle procured from the stomach of a pig or other animal. Diluted in a pint of water and added to a pound of raw meat, the whole is allowed to simmer over a water bath, at about the temperature of the body, 98° F. When the meat is by this means sufficiently broken up, it is strained and the acid neutralized by eighty-one grains of bicarbonate of soda. The product is of a most agreeable character, easily digested and vastly more nutritious than beef tea. Where pepsine cannot be obtained, the doctor has found strips of calves stomachs to answer very well.