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TORONTO, JANUARY 21, 1886.

MR. MILNER, in his essay on the "Culture of the Imagination," animadverts rather strongly upon those who use such expressions as "Education Department," "Toronto University," and so on, where a noun which, in the expanded phrase, is governed by "of," and so is a part of an adjective phrase (we are tripping, we suppose—should we say *adjectival* phrase?) is made to stand before another noun and alone do the duty of an adjective. With due respect to purists—and let us be thankful that there are such, for we newspaper men (there we are again! *newspaporial* men, we have heard said, but we prefer our own old solecism to that one) should go sadly astray were it not for their restraining and correcting hands—with due respect to purists, we say, we rather like these expressions and fancy they are not wholly barbarous. We ourselves always say "education system," and the corresponding concept is to us something quite different from that of "educational system," or even of "system of education." These latter expressions are, in our mind, nearly identical—the first of them, however, being usually restricted to the processes of education, the latter usually so, but not always; but "education system" is always used to denote an organized system of instruction as it is administered by a government.

THE use of nouns for adjectives, though properly enough objected to by grammarians, is the commonest thing in conversation and by no means rare in the writings of the very best authors. Given a noun, and a necessity for using an adjective corresponding to it, there is no way, no general way, of forming the adjective, and the result is that the noun form is used for the adjective. People are not content to use the roundabout, but undoubtedly more grammatical, phraseology of the adjectival phrase. For example, in Mr. Milner's essay, he, with all the rest of the world, says, "business men," though in no dictionary will he find "business" defined as an adjective; and though, too, "men of business" is a perfectly grammatical expression, whose meaning is the precise one needed. So, too, he says, "schoolroom jars," and "map geography," and "schoolroom journeys," and "laboratory work;" yet none of the words used here as adjectives are to be found defined as adjectives, and in every case moreover a correct, though longer, phrase can be easily formed. So, too, in the very sentence in which Mr. Milner somewhat unthinkingly, it seems to us, derides the expressions, "Education Department," and "Toronto University," and even calls them "detestable," he says "newspaper phraseology," for the "phraseology of newspapers," or "phraseology of editors." "Newspaper" is not to be found defined as an adjective and its use as such is just as objectionable as the use of "education" as an adjective.

THE truth is that these "flat" constructions, as they are called, are indigenous to our English speech, and indeed to all Teutonic languages, while the "phrasal" forms of construction, of which "Department of Education" is an example, are foreign—being borrowed from the French. We say "war department," the French, "department of war," and the Germans, "war's department," a flexional form. We say "education department," the French, "department of education," and the Germans, if we remember rightly, "education's department." But the Germans very often drop the inflectional termination, and run their words together, and so make compounds where we use constructions; for example, where we say "railway carriage"—a "flat" construction—two words—they say "eisenbahnwagen," literally, "ironroadwagon"; and where we say "part of the world" they say "welttheil," literally, "worldpart." With them the tendency is to form compounds, with us the tendency is to use "flat" constructions, that is, un-united compounds; *e.g.*, Browning's "sphere music" for "music of the spheres." With us a flat construction must come into very common use before it becomes a compound word written with a hyphen; and again, this compound word remains for a long time in a state of transition or "probation" before finally the hyphen is dropped and it is fully admitted into the language as one word. For example, "schoolmaster," now universally written as one word, was once "school master," and even now in most dictionaries it is given as "school-master." We repeat, the tendency in English is to discard "phrasal" constructions and to use "flat" syntax, but in Germany the flat syntax has been discarded for compound words which are often of eight or ten syllables. We may say, moreover, that the tendency to use flat constructions instead of phrasal forms, that is, such forms as "Education Department" instead of "Department of Education" is somewhat stronger on this continent than in England; for there is a disposition among American authors to form new and unusual flat constructions, but it must be acknowledged that these constructions are in full accordance with the genius of the language.

VERY great and general regret is felt that President Cleveland did not, in his message at the opening of Congress, refer to the alarming illiteracy of the poor people of the Southern States, both white and negro, and urge upon Congress the necessity of its bestirring itself to protect the nation from the danger of its densely ignorant voting population, whose vast number is fearfully ominous to the national weal. In fourteen States there are more than 3,530,000 over ten years of age who cannot read or write, and more than 3,000,000 children who are destitute of all school advantages. It is argued that the nation should consider these its wards, and provide them at least with some little means of instruction.

Contemporary Thought.

THE colored people of Georgia pay taxes on six million dollars' worth of school property, the sum thus derived being nearly sufficient to maintain the colored schools of the State. This is one of the reasons why Georgia is called the "Empire State" of the South.—*Current.*

THE authorities of Princeton College this year took very prompt and decisive measures to suppress the practice of hazing. They agreed upon ignominious expulsion as the punishment for the offence in the case of old offenders and suspension for a year in the case of others.

AN effort is making in Boston to take the school entirely out of municipal politics, and to this end separate elections are urged. The complaint is made that local politicians use positions in the school-board simply as stepping-stones to places in the council, the result too often being that the members of the school board are men who have no intelligent sympathy with the cause of education. —*Current.*

THE Board of Trustees of Cornell University have passed a university statute whereby every professor who shall have served seven years at the institution may have a year's vacation on half-pay. This action cannot fail to result in great good to the cause of education. It is a declaration of a body of business men that the efficient teacher is not only worthy of his hire, but that he must not be worn out in the treadmill of the lecture-room; that he is, in short, worth preserving. It is a recognition of the teacher's dignity and importance that cannot fail to have its effect upon the profession generally.—*Current.*

FORGERY in connection with educational affairs is, happily, a thing of very rare occurrence. A notable case has happened lately in Ireland, which may very well be quoted as a terror to evil-doers, being, it is believed, the first case of the kind. J. B. Thompson, a medical student, from Belfast, pleaded guilty, last Wednesday, at the Winter Assizes for Ulster, held at Omagh, County Tyrone, to the charge of uttering a forged certificate of matriculation in the Royal University of Ireland. Baron Dowse sentenced him to six months' imprisonment, with hard labor; the reasons for this comparatively moderate sentence being the state of the prisoner's health, and the fact that he had made important disclosures to the Public Prosecutor.—*The Schoolmaster.*

INDEED, it is pertinent to enquire, if, except in a few minor and exceptional particulars, the first part of the statement with which technical grammar opens is true: "English grammar teaches us how to speak (and write) the English language correctly." Rather, "our associates teach us how to speak the English language," correctly or incorrectly according to their own use of it, and the division styled "Etymology," including parsing, has an effect on the pupil's use of the language of the slightest character, chiefly in the points of forming plurals, composing adjectives and distinguishing their use from that of adverbs, in the agreement of verbs and in irregular verbs. The *names* of several of the parts of speech do not convey even a remote idea of their *uses*: as adjective, adverb; *inter*jection, an utter misnomer for a word which is not only not *placed between*, but *dis*jected from grammatical connection or relation.—*The University.*

POOR students are by no means unknown in England, and are sufficiently common in Scotland and Ireland; but nothing like the extreme destitution which prevails among the humbler class of students in some of the German universities is (as the *St. James' Gazette* points out) to be found in the very poorest of our seats of learning. M. A. Martha, who contributes a paper on the German pauper students to the *Revue Scientifique* states that the number is largely on the increase, and is causing much uneasiness to the university authorities, Professor Billroth in particular having frequently drawn public attention to the danger with which this large influx of starving students menaces the universities and society. As examples of the straits to which these hapless hungerers after knowledge are reduced, M. Martha quotes from a Berlin paper the application made some time ago to the municipality by a university student who asked to be employed as a night-sweeper; a post which, however modest, would not interfere with the prosecution of his studies. In the Galician and Hungarian universities poor students sell matches in the streets, or, if they have a musical gift, eke out existence by singing or playing in the *cafés* and *brasseries*. Many of them, for want of books and leisure to study, never manage to pass the examinations, and settle down at thirty to the very humblest occupations; while not a few take to evil courses and swell the army of crime.—*The Schoolmaster.*

SOON after the death of Galileo the telescope was further perfected by Huygens, who, in the first place, invented the form of eye-piece which still bears his name, and gives a large, flat field with very sharp definition. Many variations of form, but no improvement in the seeing quality of telescopic eye-pieces, have since been made, so that from this time all improvements in the telescope have been necessarily confined to the object-glass. Huygens next enlarged the single-lens object-glass to its greatest possible power. His largest telescope had an object-glass five inches in diameter, and a focal length of one hundred and twenty feet; this enormous focal length being absolutely necessary to reduce the blurring effect of the prismatically colored fringes, as well as spherical aberration, to such moderate limits that a magnifying power of upwards of two hundred diameters could be employed. To have watched Huygens at work with this telescope must have been an amusing sight. Its great length precluded the use of a tube, and therefore an assistant was obliged to slide the object-glass up and down a vertical pole, one hundred feet high, by a cord, while Huygens pointed the eye-piece at the object-glass by sighting along a string connecting the two, meanwhile steadying himself by resting his elbows on a two-legged wooden horse. A more difficult and unsatisfactory contrivance to use can hardly be imagined, yet, with this telescope, in 1655, he discovered the rings of Saturn, and one of its satellites.—*From "The Refracting Telescope," in Popular Science Monthly for December.*

STROLLING one day in what is euphemistically termed, in equatorial latitudes, "the cool of the evening," along a tangled tropical American field-path, through a low region of lagoons and water-courses, my attention happened to be momentarily attracted from the monotonous pursuit of the nimble mosquito by a small animal scuttling along irregularly before me, as if in a great hurry to get out of my way before I could turn him into an excellent specimen. At first sight I took the little hopper, in the gray dusk, for one of the common, small green lizards, and wasn't much disposed to pay it any distinguished share either of personal or scientific attention. But, as I walked on a little farther through the dense underbrush, more and more of these shuffling and scurrying little creatures kept crossing the path, hastily, all in one direction, and all, as it were, in a formed body or marching phalanx. Looking closer, to my great surprise I found they were actually fish out of water, going on a walking-tour, for change of air, to a new residence—genuine fish, a couple of inches long each, not eel-shaped or serpentine in outline, but closely resembling a red mullet in miniature, though much more beautifully and delicately colored, and with fins and tails of the most orthodox spiny and prickly description. They were travelling across-country in a bee-line, thousands of them together, not at all like the helpless fish out of water of popular imagination, but as unconcernedly and naturally as if they had been accustomed to the overland route for their whole lifetimes, and were walking now on the king's highway without let or hindrance.—*Grant Allen, in Popular Science Monthly.*

FROM these sources we learn that, when weighed shortly after his birth, the infant Frank was found to be heavier than the leg of mutton provided for the family dinner of that day; and that a birch-tree was planted in honor of his arrival, the taste of the twigs of which he learned to know well. His early years, as described in his mother's journal, reflected in miniature his character in maturer life. For facts, especially of natural history, he had from childhood a most tenacious memory. At four years of age he began collecting specimens, and at seven he commenced a journal. Earlier than this, at two and a half years of age, "he would have gone through all the natural history books in the Radcliffe Library without making an error in miscalling a parrot, a duck, a kingfisher, an owl, or a vulture." When he was four years old a clergyman brought to Dr. Buckland, from a considerable distance, some "very curious fossils." They were shown to the child, who, not yet able to speak plainly, said, "They are the vertebræ of an ichthyosaurus." At three years of age his mother could get him to learn nothing by rote. His mind was always at work on what he saw, and he was very impatient of doing that which was not manifest to his senses, yet he was not considered premature. He excelled in apparently strong reasoning powers, and a most tenacious memory as to facts. He was always asking questions, and never forgot the answers he received, if they were such as he could comprehend. And he was always wanting to see everything done, or to know how it was done; and was never happy unless he could see the relation between cause and effect. —*From "Sketch of Frank Buckland," in Popular Science Monthly for January.*

Notes and Comments.

BELLEVILLE is the only city of the Province whose high school has not been made a collegiate institute. The reports we occasionally get of the Belleville school are of a very satisfactory kind, and we should be glad to have the pleasure of recording its elevation to the rank of institute.

WE have received from the publishers the first number of *Grip* in its new dress, which is of a more expensive and suitable character and artistic finish than its cast-off habiliment. Its present appearance is very attractive. We wish our wise and witty contemporary abundant success and a rich reward for its enterprise.

WE call the attention of our readers to Colonel Parker's article on the teaching of reading by script rather than print, and invite expression of opinion thereon. Will some of our teachers give their experience in the matter? The valuable papers by Mr. Salmon on "Common Faults in Object Teaching" will be of great service to all young teachers.

THE presence in a community of a company of musical artists like the Toronto Quartette Club is of great educational value. All culture works downward. The lower forms simulate the higher. The "Monday Popular Concerts," in which the members of this club are the leading performers, are doing good service for musical culture. They have merited success and they have won it.

WE trust that many have read Dr. Woodward's article on "Manual Training," reprinted in the last issue of the WEEKLY. As our readers know, the subject of the relation of manual training to the work of general education is exciting great interest among all educationists. We print in another column some interesting and thoughtful remarks by the *N. E. Journal of Education* on Dr. Woodward's ideas.

IN the EDUCATIONAL WEEKLY for January 7th is an account by Mr. R. H. Knox, of a "Teachers' Protective Association" recently formed in the county of Perth, which is intended, if we mistake not, to be the nucleus of a similar association which shall be provincial in its scope. We learn from Mr. C. W. Chadwick, Principal of the Stratford Model School, that at a recent meeting of the Association its constitution was somewhat changed from that outlined in Mr. Knox's letter. The aims of this Association are so novel and of such importance to the profession that we shall be glad to have from our readers expressions of opinion in regard to it. It will be in order for the promoters of the Association first to advance their views in support of it.

WE have received the *Century* and *St. Nicholas* for January, but though we have not found room to notice them in our columns, they are worthy of especial mention here. As we have said before, *St. Nicholas* for young people is without superior and with scarcely any rival. The very best authors are engaged to write for it, and one reads its pages with never-abating interest. In respect of illustrations both it and the *Century* are a perpetual delight. The "Feathered Forms of Other Days," in the *Century*, an account, with many beautiful reproductions, of wonderful bird-forms now extinct, such as the *Archaeopteryx* and *Hesperornis*, merely as an educational article, will repay careful reading.

THE Shelburne *Free Press* denounces very strongly the papers in Literature, Grammar and Orthoëpy, set for the late Entrance Examination, and suggests that the examiners should be replaced by others "having common sense." The paper in Literature certainly does call for the *teaching* of literature, and not for the dictation to the pupils and the cramming by them of notes respecting the lessons prepared by some one not the teacher. It supposes a different sort of teaching from much that is in vogue. We notice no "figures of speech" asked for as in old times, nor Saxon and Latin derivations unintelligible to any child; but the questions do suppose a clear knowledge of the *meaning* of the lessons, as a whole, and of their component words and sentences, and a power of expressing this meaning in words.

SOME of our contemporaries are urging upon the Legislature the necessity of a change in the School Law so as to allow parents whose property is in one school section, but whose residence is nearer the schoolhouse of another, to be allowed the privilege of sending their children to the nearest school, and of having their school taxes paid for the support of that school rather than for that of the one in whose section their property lies. The law, as it stands now, does allow of the change of the boundaries of a school section, but the process of changing is tedious, and is so hemmed in with provisions and safeguards that a change is rarely made; and indeed we do not see how it can be otherwise. The true remedy, it seems to us, is the general establishment of township boards; then children might attend what school in the township would be most convenient for them.

GUELPH COLLEGIATE INSTITUTE began its existence with the commencement of the year. We heartily congratulate Principal Tytler, and his staff of coadjutors, upon the success which has attended their painstaking and energy, for it is very true that in the great number of cases it is the head master and his assistants who build up a school. Even the liberality of a liberal trustee board, acting for a liberal people, will not of itself secure success—this latter depends more upon teaching and management than upon anything else. At a very early date in its history Guelph possessed a grammar school, but when Mr. Tytler became head master of the high school in 1875 there were only twenty pupils in attendance, and at the entrance examination held that year only two pupils of the public schools of the town were found qualified for admission. The school has now an average attendance of over 150, and the new building is said to be one of the most complete in the Province. The staff, at present, in addition to Mr. Tytler, consists of Mr. Jas. Davison, mathematical master; Mr. R. K. Orr, modern languages master; Mr. J. Campbell, classical master; and Mr. D. Young, commercial master. We trust that the Guelph Collegiate Institute may long continue to exercise a leavening influence of refinement and culture and to contribute much practical benefit to the community which supports it.

AT the meeting of the "Modern Language Association of America" held in Boston during the Christmas recess, noticed in our comments last week, Mr. Charles Whetham, B.A., a recent distinguished graduate of the University of Toronto, and now a Fellow of Johns Hopkins University, Baltimore, read a paper on the "Study of Modern Languages in Ontario." President Eliot, of Harvard University, in commenting on Mr. Whetham's paper, stated that the system of modern language study pursued in Ontario, indicated a higher standard than that which prevails in most of the institutions for higher education throughout the United States. One of the most valuable papers of the meeting was that of Professor Hunt, of Princeton College, on the "Place of English in the College Curriculum," which contained the following sound opinions: "The first year English of the colleges should be remanded to the preparatory schools, so that students should be prepared for college work with a fair knowledge of etymology, of historical English, and of the composite elements of the tongue. This would open a wider field of work in college, and there would ensue a beneficial change, for we should rise to a philological study of language, and our examination would be critical and comprehensive instead of merely chronological. If the study of English begins and ends with facts only, there is no mental discipline; but if the college work is enabled to take higher ground, the discipline will take its place beside it. English literary culture is for English-speaking students the highest form of culture. We are told that our literature is on the decline. The difficulty is to be found primarily in the want of a distinctive literary training in our schools and colleges. Our graduates go forth without being inspired with the literary spirit."

Educational Opinion.

AUXILIARY EDUCATIONISTS.

NO. VIII.

IV.—MAHLON BURWELL, ESQ., M.P.P.

In November, 1832, Mr. Burwell again had a Committee of the House of Assembly appointed to enquire into the manner in which the king's wishes had been carried out in regard to the royal grant of lands for educational purposes in 1798. To expedite this enquiry the important despatches and reports formerly asked for by him and sent down to the House by the Governor, with others, were printed and distributed.

Mr. Burwell also introduced a Bill "for the establishment, maintenance and regulation of common schools," in the Province. He made several motions, too, on the subject of the King's College charter and school lands. On the 21st November he submitted the first report of his "Select Committee on the Subject of Education." The historical part of this report being somewhat interesting in its statements, I quote it as follows :—

"The Committee have been forcibly struck with the uniform anxiety which has been manifested at all times by the Legislature and Provincial authorities for the establishment of a university.

"It formed part of the prayer of both Houses in their address to the King in 1797.

"It was strongly recommended by the Executive Government, the judges, and law officers of the Crown, in 1798.

"In 1806 the Legislature, to show that something more was even then required than grammar schools, did all their limited means permitted, in providing a small apparatus for the instruction of youth in physical science, that they might enter the world with something more than a common district school education; such an institution was again noticed in 1820, and an earnest desire expressed by the Legislature, which knew best the wants of the Province, for its speedy establishment.

"In 1825 so many young men were found turning their attention to the learned professions that the Executive Government thought that the establishment of a university could be no longer delayed without the greatest detriment to the Province, and, therefore, applied to His Majesty for a Royal Charter, which was granted in 1827, in terms as liberal, it is said, as the then Government would allow; but such as proved by no means satisfactory to your Honorable House." . . .

About the middle of December, 1832, Mr. Burwell brought in the second and very elaborate Report of the Select Committee on Education. This report was chiefly based upon the opinions of several witnesses examined by the committee on the subject of school lands, King's College charter, U. C. College, and education generally. The witnesses examined were Chief Justice Robinson, Archdeacon Strachan, Chairman, and the Hon. G. H. Markland, Secretary to the Provincial Board of Education; Hon. Joseph Wells, a member of the board, and treasurer of U. C. College; Rev. Dr. Joseph H. Harris, Principal of U. C. College; Rev. Dr. Thomas Phillips, Vice-President; and Mr. S. P. Hurd, Surveyor-General of the Province.

The general views of these noted men on the subject of education are both interesting and instructive in the light of to-day; but space forbids a further reference to them here. The report itself deals with the then pressing question of the extension of educational facilities to the entire Province. It points out in strong language the undesirability of continuing a system of district, or grammar, schools which were quite adequate to the wants of the Province when the population was only 50,000, but which was not at all equal to the requirements of Upper Canada when that population had increased to nearly 300,000. These references show how wonderfully the Province has progressed in population and in its educational advantages since that time.

The following passage from the report is prophetical in its anticipation of the future. This is illustrated by the fact that a somewhat similar utterance was made by Sir Lyon Playfair in his recent address as president of the British Association, at Aberdeen. The passage in the report is as follows :—

"That the situation of the Province in wealth and commerce, and in its demand for superior attainments in the various professions is very different from what it formerly was; and that unless opportunities are immediately furnished by the establishment of superior schools for the instruction of our youth in the higher branches of science, we must fall behind the age in which we live."

What was thus put forth as a local thought, but yet as an educational axiom, by these educational pioneers of Upper Canada, upwards of fifty years ago, is thus forcibly and beautifully amplified by this year's president of the British Association. Speaking generally, and contrasting the educational policy of the colonies and that of the mother country, he said :—

"The colonies, being young countries, value their raw materials as their chief source of wealth. When they become older they will discover it is not in these, but in the culture of scientific intellect, that their future prosperity depends. . . . Jules Simon tersely puts it :—'The nation which most educates her people will become the greatest nation, if not to-day, certainly to-morrow.' Higher education is the condition of higher prosperity, and the nation which neglects to develop the intellectual factor of production must degenerate, for it cannot stand still. . . . The illustrious consort of our Queen was not the first prince who saw how closely science is bound up with the welfare of states. . . . How unwise it is for England to lag in the onward march of science, when most other European powers are using the resources of their states to promote higher education and to advance the boundaries of knowledge. [She] alone fails to grasp the fact that the competition of the world has become a competition of intellect. . . . A nation in its industrial progress, when the competition of the world is keen, cannot stand still. . . . I contend that in public education there should be a free play to the scientific faculty, so that the youths who possess it should learn the richness of their possession during the educative process. . . . Science has impressed itself upon the age in which we live; and as science is not stationary, but progressive, men are required to advance its boundaries, acting as pioneers in the onward march of states. Human progress is so identified with scientific thought, both in its conception and realization, that it seems as if they were alternative terms in the history of civilization."

In giving these extracts so fully I have been tempted beyond the limits which I first set for myself. I have done so for two reasons: First, I desire to do honour to the zeal and to acknowledge the forethought and prescience of those members of the House of Assembly who, in 1832, placed so strong an emphasis upon the value of "the instruction of our youth in the higher branches of science"; and secondly, to point out, in the weighty words of Sir Lyon Playfair, the immense importance (in the light of past experience) which he and other leaders of thought in regard to England's industrial life and practical progress, attach to the teaching of elementary science in the schools. He touches upon this point in another part of his address, in pointing out the absurdity of requiring all pupils to study the same subjects. He says:—

"In a school a boy should be aided to discover the class of knowledge that is best suited to his mental capacities, so that in the upper forms of the school, and in the university, knowledge may be specialized in order to cultivate the powers of the man to the fullest extent. . . . The adaptation of public schools to a scientific age does not involve a contest as to whether science or classics shall prevail, for both are indispensable to true education. The real question is, whether schools will undertake the duty of moulding the minds of boys according to their mental varieties."

J. George Hodgins.

MUSIC IN PUBLIC SCHOOLS.

The most favorable period in the whole school life for laying a solid foundation for the intelligent rendering of music is the first three years, and here is where we must make an intelligent beginning. We need first to appreciate the ability of the little child to learn the elements of music. This we shall never know till we learn better how to present these elements in their simplicity, in accordance with the mental laws by which the mind acquires a knowledge of all subjects. When we shape our methods of teaching so as to present this subject to the mind in accordance with these laws, all difficulties will disappear. Every successful teacher will have his own ways and means of presenting his subject and holding the attention of his pupils; but no teacher is successful in the largest degree who does not make his methods conform to fixed principles in teaching. It is the practical application of the objective principle in teaching music that we need to discuss, and to this I desire to call your attention.

The very name of objective teaching suggests that there must first be an object to be presented to the mind; we must first have a

* The substance of an address delivered by Mr. Holt at the late Convention of the Music Teachers of Ontario.

unit of thought or *real object* to teach. The first problem, therefore, will be to decide upon our *unit* in music.

The major scale is the unit through which we must think in training the mind in *tune*. From the intervals in this series of sounds come all the combinations of sounds of which music is composed, and with these simple intervals we can unlock all difficulties found in the study of the pitch of sounds.

When these facts are understood, and it is remembered that the regular teachers in our schools can train their pupils just as intelligently in sounds as they can in numbers or colors, and that these sounds can be more easily and successfully taught at an early age than either of the subjects mentioned, we shall find that music as an educational factor in our public schools has never been realized.

To make available the teaching power of the regular teachers for music, they need to be shown how to apply the same intelligent methods in training the ear to sounds as *mental objects* that are used in training the eye to numbers and colors. The ordinary rote or imitative work is not real education in music. The mind gains power only through its own activities, and when the unit of thought—*the major scale*—has been clearly established the pupils should be required to work out *all* problems in the study of intervals by *singing them*. The teacher should only guide the pupil in his thinking and practice until he gains command of the whole subject. This is a self-educating process for both teacher and pupil. Not a question should be asked by the teacher that is not immediately preceded by the sound to which it refers, and the sounds should be so named that every character used in representing the pitch of sounds should be named by teaching and naming the sound itself before the character is given.

This is a very simple matter, and when we, as teachers, learn how to do it, the question of notation is settled, for no one would think of using any other than that of the staff after having learned to train children in this way. This is all I shall have time to say upon the subject of pitch. I will give a practical illustration of the principles I have set forth, showing how children should be taught to think in sounds.

* * * * * * *

I now come to the important element of time in teaching music. In this as well as in tune we must first find the *unit* of thought upon which *time* in music is based. We find this to be the *whole* measure. We find a measure in music to be a group of accents, and no idea of accents can be given through the eye. Through the senses of hearing and feeling, only, can the idea of the different forms of measure be conveyed to the mind.

The various effects in rhythm or time in music come from the varying accents; and the teaching of time resolves itself into simply *practice of accents*. This being the case, it becomes all-important that these accents should be definitely and distinctively named. Notes give us no idea of the length of sounds, and we shall gain no knowledge of time in music by learning their fractional names and values as notes. They represent pulsations or accents, and they should not be seen by the pupils until these pulsations or accents are established in the mind. Those who have taught the fractional names of notes and rests and measured their values by set motions of the hand all their lives, will be slow to believe that this is all unnecessary, and that there is a much more effective, direct, and less complicated way of teaching this subject. A two-part measure is simply a *strong* accent followed by a weak one, and as soon as children are made to feel these regular, recurring strong and weak accents, they are prepared to sing intelligently in plain two-part measures. A three-part measure is simply one strong and two weak accents. A four-part measure consists of a strong accent followed by a weak one, and another less strong than the first followed by another weak one. A four-part measure is not two two-part measures united, nor a six-part measure two three-part measures. How can these various groups of accents be most clearly presented and named to the mind? The *real objects* to be taught in both time and tune are *mental* objects, and no idea of them can be given through any picture or drawings that we can make to the eye.

The importance of a time-language will be appreciated when the fact is fully realized that it is *impossible* to teach time *intelligently* without time-names of some kind. To teach time in any other way is to teach it by *rote*. A perfect time-language must name the relative accents in each form of measure, and the relative length of each sound in any group of notes. This is all accomplished by making use of the vowels ă, ā, ō, ē, to name the accents, and the consonants t, z, f, n, r, l, which will name the relative length of each sound in all combinations covering four sounds to the pulsation or accent. In teaching time with this time-language and using a pendulum as a metronome, the pupil may be required to give a strong pinch of the thumb and finger for the strong accent, and weak pinch for the weak accent. In this way we quietly bring to our aid the two senses that can be employed to establish in the mind the sense of time.

The time-language names all of the different accents and length in sounds to the ear, and the strong and weak pinch aids in establishing the feeling of accents while the pendulum regulates the movement through the eye. Various devices have been invented for teaching time with a time-language All others, so far as we know, fail to compass the whole subject. All other systems employing a time-language require the pupils to learn the fractional names of the notes and rests, and require the mind to direct certain set motions for each part of the measure, thus concentrating and severely taxing the reasoning powers upon the *notation*, at the same time that the mind is thinking, and the voice is producing the sounds. All this should be abandoned, and the teacher should proceed at once to establish in the minds of his pupils a feeling of regularly recurring *accents*.

It will be seen at once that this wonderfully simplifies the teaching of music, and deprives this beautiful science of all its disagreeable elements. It is a play with sounds, and hence the interest is kept to its highest point. The pupils are continued *in practice* and not subjected to a dry drill in the technicalities of the science.

I am frank enough to say of my former teaching, that so far as real education in music is concerned which should give children command of their musical powers, with the same certainty of reading music intelligently at sight that they have in reading the language, in the light of present developments it seems to me to have been a failure in comparison to what can and ought to have been accomplished, and I assure you, fellow teachers, that the fault has not been either with the *children or with the notation.* It will be a genuine surprise to all teachers to see what can be accomplished with little children in gaining a knowledge of sounds when the scale is taken as the unit in thinking, and practice given upon it in its different positions upon the staff the same as children are exercised in numbers and their combinations in studying their tables. This work in sounds can be as successfully done by the regular teachers as in numbers, and the time is not far distant when music in our public schools will be as successfully taught by the regular teachers as any other branch of study.

H. E. HOLT.

WRITTEN COMPETITIVE EXAMINATIONS.

ONE of the "pestilent crotchets" denounced in his own vigorous way by Principal Grant is "written competitive examinations." In my comments on his denunciation I pointed out that "written competitive examinations" are injurious, not because they are written, but because they are competitive. Dr. Grant replies that "this dictum will not be accepted as final, either on its negative or its positive side." I have no hope or desire that it should be. The

"dictum" is merely an expression of opinion based on my experience as a public school teacher, a high school teacher, a university undergraduate, a university examiner, a conscientious student of pedagogical methods, and an earnest observer of educational phenomena. After re-reading Dr. Grant's former paper I am convinced that he has fallen into the error of confounding things that should be kept distinct, and he has not in his later one done much to clear up the confusion. With himself he associates Prof. Chrystal and Sir Lyon Playfair, who did at the British Association meeting denounce "written competitive examinations," but, as I shall presently show, these critics were denouncing something altogether different from what Principal Grant calls the "written examination craze."

I have never been able to find an educationist of any standing who is prepared to say that a written examination is in itself a bad thing. The practice of putting one's thoughts on paper in regular form is a most important means of mental culture, and if the questions asked are suitable questions this statement is as true of the child in the infant school as of the graduate student of the university. Dr. Grant admits that a well-conducted written examination is an excellent thing. In the face of this admission I find some difficulty in comprehending the ground of his attack on what he calls the "written examination craze." Nor does his latest explanation afford me much help. "By the written examination craze," he says, "is usually meant that reliance on a uniform system of written examinations conducted by outside examiners, that has taken the place of trusting teachers." If this is what he means by the expression, then I can safely assure him that what he is denouncing is something quite different from what Prof. Chrystal denounced, and to protest against his citation of Prof Chrystal's views as corroborative of his own.

What Prof. Chrystal condemned was written competitive examinations, whether in public schools or universities, and I could easily show that what he objected to was the competitive element in these examinations. His remarks about London University, so far as they had force at all, had it just because personal competition is still kept up in London, though it has been abandoned in the class lists of Oxford and Cambridge. His remarks about the relation of the public schools to written competitive examinations had reference to a state of affairs of which we have never yet had any experience in Canada. In England a huge system of "written competitive examinations" has been inflicted on the schools by the adoption of the competitive test as a means of selecting officials in the Civil Service. A few years ago clerks in the public service were appointed, as they still are here almost entirely, and in the United States very largely, on political party grounds. Parliament, with a view to checking the evils of patronage and not with any educational object, instituted competitive examinations as a test, at first for entrance into the East Indian service only, but more recently for entrance into the British Civil Service generally. It is easy to understand the educational effect of this change—an effect which the promoters had no idea of producing and which many of them regard with regret.

That I am right in my assertion as to the object of Prof. Chrystal's denunciation will appear from his own language. "Examinations," he says, "have a strong hold upon us, for various reasons, some good, some bad, but all powerful. In the first place they came in as an outlet from the system of patronage, which, with many obvious advantages, some of which are now sorely missed, had become unsuited to our social condition." In another place he alleges that "it is the absurd prominence of written competitive examinations that works all the mischief" he is lamenting. To fully comprehend the scope of these remarks it is necessary to bear clearly in mind what a competitive examination is, and that it may be oral as well as written, or partly oral and partly written. Competition in connection with examinations is of two kinds, both of which are well illustrated by the practice of Cambridge and Oxford Universities and Colleges. There is competition of one kind when a man seeks a place in the honor class list, knowing that if he gets it his name will appear in alphabetical order along with the others who are successful. There is no "first" in the class. There is competition of another kind when a man is trying to win the highest position, whether for the mere distinction or for the sake of getting a monetary reward. In the former case all those who reach a certain standard are placed on the same footing in the matter of distinction; in the latter, one man succeeds while all the rest fail. I need hardly point out that of these two kinds of competition the latter is the more injurious, and yet the examination for the East Indian Civil Service is competitive in this way. Prof. Chrystal is not the first critic who has pointed out the mischievous effects of these competitions on secondary education in England. The whole subject was very elaborately and philosophically dealt with nearly ten years ago by Mr. Latham, a Cambridge Fellow and tutor, in his well-known and highly suggestive book, "On the Action of Examinations Considered as a Means of Selection."

The nearest approach to the injurious system now in force in England that we have ever had in Ontario was the late intermediate, and that was a competition between schools for a share of a fixed grant, not between individual pupils for a place in an honor list. That the intermediate was productive of harm I believe; that it served also a useful purpose we all know. It was adopted as a means of distributing the high school grant; it was abandoned when it was found expedient to try another mode of distribution. Like the English Civil Service examinations, it was brought into existence for a purpose not educational, and when it went out of existence it went not because it was educationally mischievous, but because it was no longer needed. Since it took its departure we have no universal written examination in this Province, and if one is not provided we will soon find even the teachers asking for it. They cannot work effectively, as a body, without a standard any more than private schools do, and private schools are notoriously ineffective. Sooner or later the better schools of this class will voluntarily subject themselves to the public examination tests, and those who first proclaim their intention to do so will find their enterprise amply rewarded.

I took occasion in my former paper to refer to the opinions of prominent university men in the State of New York as to the value of a "paper university" system; I may here supplement what I there said by referring to a very notable function of the Board of University Regents of that great State. That function is the distribution of the educational grant amongst the secondary schools—a distribution based exclusively on a written competitive examination exactly parallel to our own late intermediate. Whether this system of "payment by results" works well or not, it is certain that the leading educationists of New York think it does, and though there is an occasional grumble from the hard-worked or unsuccessful teacher, there is nothing like an agitation for the discontinuance of the system. I have no doubt, however, that the very men who tolerate the New York system would join heartily in Prof. Chrystal's denunciation of the English system of personal competition, which neither Ontario nor New York ever knew anything about except in connection with the competition for university scholarships, prizes and distinctions.

Before saying a few words on this latter kind of competition as it exists here, I wish to point out that "the outside examiner," who is Dr. Grant's *bête noir*, is not necessarily an educational nuisance. He is an absolute necessity under a competitive system in which the competition is between students from different colleges affiliated with the same university. Prof. Chrystal and Dr. Grant are very severe on London University—absurdly and unjustly so—but the "outside

examiner" is as characteristic of Cambridge as he is of London. I mean Cambridge University. The teachers of the various colleges in Cambridge would not trust each other as examiners in a university competition, and all that prevents Cambridge from being a "paper university" is the delivery of a few university lectures, attendance at which is optional with the students, and which are patronized by the general public. While the outside examiner may be very efficient in the discharge of his duties, the teacher may be utterly useless as an examiner. Many a man has all the learning and enthusiasm and other qualities which make up the good teacher without having the critical faculty and the judicial temperament which are essential to a good examiner. The obvious inference is that the teacher should be selected with a view to teaching, and the examiner with a view to examination. If the latter has had experience as a teacher so much the better.

At the close of a paper already long enough, I can make only the briefest reference to the important subject of scholarships. It was quite unnecessary for Dr. Grant to raise the question of "bribes" offered at matriculation by different universities, since he knows quite well that I am opposed to the practice in my own, and that I have never reflected on Queen's for accepting donations for the purpose of establishing scholarships. My former remark had reference to nothing but the apparent inconsistency between opposition to "written competitive examinations" and support of a system under which scholarships are awarded on such examinations. When I made that remark I supposed that it applied to the practice in vogue in Queen's. I am glad to learn that it does not, and I have no hesitation therefore in withdrawing the charge of inconsistency, which should never have been made. Dr. Grant states that in his university they have "abolished class prizes," and that, though they have bursaries, "none of them are given on competition." I would like to be in a position to say as much for the University of Toronto. Scholarships given for the purpose of aiding students should not be awarded on the results of a "written competitive examination," even when they are privately donated.

WM. HOUSTON.

MANUAL TRAINING.

THE recent visit of Prof. C. M. Woodward, Ph.D., director of the Manual Training School, and Dean of the Polytechnic Department of Washington University, St. Louis, to several of our eastern and western cities, will doubtless be of great interest and awaken a desire to establish similar institutions. It should be borne in mind, however, that Professor Woodward has unusual opportunities, which, along with a special genius for this work, largely contribute to his great, immediate success. The St. Louis Manual Training School is, in fact, a secondary school, tributary to the Polytechnic Department of Washington University, Professor Woodward having oversight of both. Professor Woodward does not go into the difficult question of the introduction of industrial courses in the primary or grammar schools; but he claims that, when possible, an elective course in the free high school or academy, similar to that pursued in his own, would greatly strengthen that department of education, and furnish an introduction to the proper school of technology for instruction in trades and mechanical professions. We have no doubt of the correctness of this view, and the success of the experiment if carefully tried. Already the cities of Toledo and Cleveland, O., have been able to establish such a department to their high schools, and others are preparing to follow their example. The obstacles are: First, the expense, which seems to make private aid essential to their foundation; and second, the difficulty of finding instructors able and well balanced, to make the manual training a reality and hold it in fit relations to mental training.—*N. E. Journal of Education.*

GENERAL EATON'S SERVICES.

GENERAL EATON'S career is one worthy of special mention. He was born in Sutton, N.H., in 1829; was educated in the common schools of New Hampshire at the academy under Dr. Hiram Orcutt, at Thetford, Vt., and at Dartmouth College, graduating in 1854. He became principal of a school in Cleveland in 1854; was superintendent of schools at Toledo from 1856 to 1859. In 1861 he entered the army as chaplain of the 27th Ohio Col. Infantry, and in 1862 was appointed superintendent of the colored refugees who came within the Union lines in the army of the Tennessee.

Under his administration the colored people were, as far as possible, made self-supporting, and all possible forms of industry were devised for them. They were cooks, nurses in the hospitals, laborers in the army; thousands and thousands of cabins were built; wood cut; cotton, corn, and vegetables raised. Marriage obligations were enforced; schools were established in which benevolent teachers from the North did great service. These schools became largely self-supporting. His camps, it is estimated, furnished over 70,000 colored soldiers. He became colonel of the 63rd Colored Infantry, and was made brigadier-general by brevet, and in May, 1865, Assistant Commissioner of the Freedman's Bureau, and was ordered to Washington, D.C.

In 1866 General Eaton founded, and was editor of the Memphis *Post*, a daily, weekly, and tri-weekly paper. In 1867 he was elected State Superintendent of Public Instruction for Tennessee, and secured the attendance of 185,000 pupils in the new schools. He was appointed United States Commissioner of Education by President Grant, and assumed the duties of the office in March, 1870, when the office had only two clerks, not over a hundred volumes belonging to it, and no museum of educational illustrations and appliances. Commissioner Eaton has now 38 assistants, the library numbers 16,000 volumes and 40,000 pamphlets. His publications and opinions are sought in every part of the world where there is progress in education, and are translated into most remote languages, as those of Finland and Japan.

General Eaton has twice visited Europe, and, travelling much in the States and Territories, has made himself familiar with the actual condition and needs of education. Every phase and problem of education receives his attention. He has promoted important changes in elementary instruction, aided improvement in schoolhouses, promoted greater attention to hygiene in public schools, helped efficiently to advance the qualifications of teachers and the standards of legal and medical instruction, He has done much for the improvement of our colleges and universities, and especially of agriculture and mechanic arts, and for the establishment of schools of manual training. He has been the promoter of the kindergarten, and has aided the progress of education in every department. He always urges education for every child in the land. He has urgently shown that the condition of illiteracy in the United States requires national aid. The provision of a government for Alaska, and schools for its people, so long withheld, was especially aided by his endeavors.

He was appointed by the President to represent the Department of the Interior at the Centennial Exhibition in 1876; has been twice elected president of the American Social Science Association, and one of the vice-presidents of the American Association for the Advancement of Science, and president of section "I.," and was chief of the Department of Education for the New Orleans Exposition and organized that vast exhibition.

His books have been reports—one of the schools of Toledo, one of the schools of Tennessee, and an annual report of education in the United States, with a review of education in other parts of the world each year since 1870. These reports have been published and circulated some years to the number of 40,000. He has also published important special reports, like those on libraries and on industrial education; also a series of circulars of information and bulletins, some of them having been called for to the number of a hundred thousand. He has delivered numerous addresses upon educational topics. He has been made a member of various learned scientific and historical and benevolent societies, in this country and in Europe. One of our best authorities in education long ago declared him the best-informed man on education in this country. A French writer (cyclopædiac) in considering his various reports, circulars, bulletins, speeches, etc., declares him the "Informator of the World in Education."—*N. E. Journal of Education.*

TORONTO:
THURSDAY, JANUARY 21, 1886.

TOO MANY EXAMINATIONS.

CAREFUL critics assert with much force and strength of conviction that our education system is burdened with too many examinations. We cannot enumerate all, but here are some :—The examination for entrance into high schools; the examination for third-class certificates, non-professional; that for second-class certificates; that for first-class certificates, grade C; that for first-class certificates, grades B and A; the model school examination for third-class teachers; the normal school examination for second-class teachers; the training-institute examination for first-class teachers; the local examinations for women; the examinations for matriculation into the various universities; the college and university examinations of the first, second, third and fourth years; the examination for admission to Osgoode Hall; that for admission to the College of Physicians and Surgeons; and those for admission to the Pharmaceutical Society, the Royal College of Dentists, etc., etc. In addition, in very many counties there are promotion examinations by which pupils are advanced from class to class.

There is a great deal of waste here; of unnecessary complication; of overlapping; of subdivision of authority. If some amalgamations could be effected, they would be beneficial alike to teachers and to students.

In our opinion there ought to be but one examination for entrance into every university and learned society. The universities have done something to effect amalgamation by accepting in large measure the curriculum for entrance as prescribed by the University of Toronto. This is some redress, but it is not enough. The various learned societies should agree to accept a certificate of matriculation into a university as a necessary and sufficient qualification of entrance. Were this done the work of preparation would be much simplified.

The most feasible plan of amalgamation (partial) which we have heard suggested, is that of the matriculation examination of the University of Toronto, and of the examinations for third and second-class teachers' certificates. The matriculation examinations commence about the middle of June, and lasting, two weeks, practically deprive both teachers and pupils of that much of time for preparation, just when it is most needed. The examinations for teachers' certificates must commence some two weeks later than these for the convenience of those candidates who may wish to write at both examinations; and they also last two weeks.

An amalgamation could be easily effected here. The courses are the same—at least the courses in the common subjects are. Many candidates would write at both examinations were it not for the extra time and expense required. By amalgamation, the time will be saved; and so too the expense, since each candidate could write for matriculation in his own school, instead of going to Toronto as now. The courses could be arranged so that university pass papers would do for third-class certificates, and university honor and pass papers for second-class certificates.

Were this amalgamation effected there would be a great saving of expense to the university. The university senate might appoint its own examiners in the languages and sciences, that is, in those parts of the curriculum which belong to culture rather than to the technical knowledge required of a teacher; the Education Department might appoint the examiners for the technical subjects as they may be called. The saving to the university thus effected would be very material.

Another great benefit would accrue to the university—an incalculable benefit. The university would be brought into an immediate and sympathetic relation with the more intelligent and progressive pupils of all the high schools of the Province. Many additional candidates would each year enter for matriculation; and the subsequent prosecution by a fair proportion of them of the remainder of the university course could be safely counted upon.

OUR EXCHANGES.

Littell's Living Age, January 9th, has the following contents: "The Coming Contests of the World," *Fortnightly Review;* "The Origin of the Alphabet," *Contemporary Review;* "Irish Shootings," *Macmillan;* "Leopardi," *Nineteenth Century;* "A Walk in the Faroës," *Macmillan;* "Fortune's Wheel," *Blackwood;* "Contemporary Life and Thought in France," *Contemporary Review;* "C. S. Calverley," *Saturday Review;* and poetry and miscellany. A new volume of the *Living Age* began with the year, affording a favorable opportunity for the beginning of a new subscription. For fifty-two numbers of sixty-four large pages each (or more than 3,300 pages a year) the subscription price ($8) is low. Littell & Company, Boston.

BOOK REVIEW.

A Grammar School Arithmetic. By G. A. Wentworth, A.M., Professor of Mathematics in Phillips Exeter Academy. Boston: Ginn & Company. 1886. 372 pp. 75 cents.

We have reviewed several of Mr. Wentworth's books and have uniformly spoken highly of them. This one appears to us to be an excellent text-book—a good, workable book. It devotes 20 pages to the Metric System, 38 pages to Mensuration, and 40 pages to Miscellaneous Problems. The typographical and mechanical part of the book is faultless.

Introduction to the Language and Verse of Homer. By Thomas D. Seymour, Hillhouse Professor of Greek in Yale College. Boston: Ginn & Company. 1885. 104 pp. 50 cents.

The author of this "Introduction" is one of the editors of the excellent "College Series of Greek Authors," and the publishers, the Rivingtons, of America, and these facts must stamp the book before us as one of no common merit. The aim of the work is "to relieve the commentary of explanations of dialectic forms and metrical peculiarities, and to call the student's attention to the most noteworthy characteristics of Homeric style and syntax." There are four divisions of the subject: Homeric Style, Homeric Syntax, Homeric Dialect, and Homeric Verse. Under the first head, Homeric Style, Prof. Seymour deals with with the essential characteristics of Homer's poetry and the manner in which these have been expressed by translators. Then follow some remarks upon his use of epithets, synonymous and stereotyped expressions, etc., and a brief treatment of the figures of speech used in the poems. The author next gives a clear and concise summary of Homeric Syntax, and then treats exhaustively of the dialectic forms. Under this third division are some apt remarks on the digamma. The book ends with a chapter on Homeric Verse, in which the chief peculiarities of scansion are noticed. This little work is an invaluable hand-book of Homerology, and we do not know of any other book of the same size which we can more heartily recommend to the student wishing to gain a knowledge of Homer than this one. A Greek index, an index of subjects, and a list of passages illustrated or referred to in the book, are appended.

The First Steps in Number. (Teachers' Edition.) By G. A. Wentworth, A.M., Professor of Mathematics in Phillips Exeter Academy, and E. M. Reed, Principal of Training School, Plymouth, N.H. Boston: Ginn & Company. 1886. 474 pp. $1.00.

This book is a fruit of modern pedagogical science. A few years ago such a work did not exist even in the dreams of theorists; now similar ones are put forth in every branch of knowledge. By methods of teaching, happily fast falling into disuse, the cleverer pupils got on well enough; those of mediocre and inferior ability went to the wall. Now, by rational methods, arithmetic, for example, becomes something that the boy of dullest intellect can learn, at least as much of it as is necessary; and not only his mind, but that of the most acute of his class-fellows, is strengthened and expanded in the process.

The present book comprises work for the first four years of school—to the number ten, the first

year; to the number twenty, the second year; and the remainder, which includes fractions, both vulgar and decimal, and percentage, the third and fourth years. The whole book is made up of a series of questions, many thousands in all, which develop a knowledge of the subject both in principle and practice. We cannot do more just now than state the heads of the processes by which, for example, the "number four" is taught. Under each head are given at length the necessary questions. The heads are: Four as a whole; discoveries in four; facts in four; three and one; exercise for review. One and three; four minus one; exercise for review. Four minus three; exercise for review. Two and two; four minus two; exercise for review. Four divided by two; exercise for review. Two twos; exercise for review. Four minus four; four divided by one; four ones; comparison of four with numbers known.

We shall, as soon as possible, present to our readers one or two chapters in full, that they may judge for themselves. Our own recommendation of it is very strong.

We may add that a Pupils' Edition of "First Steps in Number," containing the problems given for the second, third and fourth years of the course, is to be had for 30 cents.

Language Lessons in Arithmetic; Written and Oral Exercises. By Ellen L. Barton, Principal Portland School for the Deaf. Boston: Ginn & Company. 1885. Part I., 239 pp. Part II., 195 pp. 85 cents.

The author of this book is an experienced teacher, who has studied the capacity of the child-mind, and has wrought the results of her observations into a practical system. If anything adverse is to be said of her methods, it is that they are too full, that they will necessarily exhaust the pupil's time, and leave nothing for other studies. Of course each teacher can determine for himself how much of the sort of work illustrated and described in the book he should give to his class. The method is capable both of contraction and expansion.

Briefly stated, the method is this: Numbers are always to be associated with concrete things, shoe-pegs, tooth-picks, beans, small cubes, wooden counters, and so on. The child is taught to deal with these counters directly, to translate his thoughts into words which are made plain to him by the operations he performs with his hands. These words are common, not technical, words. From the notions associated with the common words he uses, he derives in time the meaning of the arithmetical symbols which he afterwards uses. His thoughts are to be always expressed in complete sentences; these are to be uttered faultlessly, and written faultlessly—attention always being given to penmanship, spelling, punctuation, and the use of capitals.

Part I., which seems to us the more valuable book, consists of 94 exercises, of from 15 to 30 questions each, graded thoroughly, and of wonderful variety of treatment. It is this variety which will be most suggestive to one using the book, as we suppose but very few teachers, especially in rural-schools, will find the time to take up the questions *seriatim*. The questions and the answers are both to be written out in full; and concrete illustrations by strokes or crosses are to be made wherever possible. The author's treatment can scarcely be illustrated within our space; suffice it to say that we most cordially commend Part I. to the attention of all teachers of primary arithmetic.

Studies in General History. By Mary D. Sheldon, formerly Professor of History in Wellesley College, and Teacher of History in Oswego Normal School, N. Y. Students' Edition. Boston: D. C. Heath & Company. 1885. 556 pp. $1.75.

To many this book will appear a novelty in the treatment of history. From the title no idea whatever could be obtained of its purpose and scope. What Miss Sheldon aims at accomplishing is best explained in her own language. In her prefatory remarks she says: "This book is not a history, but a collection of historical materials; it contains just the sort of things that historians must deal with when they want to describe or judge any period of history; and just the kind of things, moreover, which we Americans must constantly attend to and think about. In Greek history it gives bare chronicles of deeds, pictures of buildings and statues, extracts from speeches, laws, poems; from these materials you must form your own judgment of the Greeks, discover their style of thinking, acting, living, feeling; you must, in short, imagine that you yourself are to write a Greek history, or that you are a Greek citizen, called upon to judge of the life about you." In other words, Miss Sheldon seeks to make historians of her pupils and readers, by giving them the raw materials of history, and then asking them to build up a stately, symmetrical fabric, perfect in all its details. It is easy to see that such mental exercise must have great educational value, provided there are sufficient data given to form accurate conclusions, and sufficient maturity of mind to draw such conclusions. It is just here that the weakness of this method of teaching exhibits itself. It is impossible to give the necessary amount and variety of data in the compass of a few pages, to enable even a trained thinker to arrive at satisfactory results. At least Miss Sheldon has not given us such facts in any part of her book. It would be perfectly useless to endeavor to make historians out of young pupils—the experience and power of drawing conclusions from given facts are both wanting. If this method is to be applied at all, it must be with young men and women of intelligence and cultivation. But such students have already formed ideas and opinions about the leading facts and personages of history; so that their already acquired knowledge would unconsciously supply the gaps in the condensed narratives given by the teacher, and interpret and color the facts as presented. Miss Sheldon, no doubt, has the idea that there is a science of history, just as there is a science of chemistry; and that the method of study which has proved so satisfactory with the latter, will prove equally satisfactory with the former. It is scarcely necessary to say that such a thing as a science of history has not yet been constructed, that the utmost we have yet attained is the ability to draw some general conclusions from our knowledge of human nature as exhibited on a large scale. Before such a book as this author has given us can be of much value, we must be able to draw as unerring conclusions from the facts of humanity as the naturalist or chemist can deduce from the phenomena of inanimate nature. We may add that Miss Sheldon has, in many instances, given excellent condensations of the history of important periods—condensations which might be of value *after*, not *before*, the student has studied these periods in standard authors. The book also contains many excellent illustrations, cuts, and maps. Besides, we have in abundance, questions given to excite thought—questions such as an investigator would ask himself when striving to construct the history of a given period. On the whole the book is an interesting one, and suggests many ideas about historical study of considerable value.

HERE is Bishop Hurst's experience with Modern Greek, recorded in the *Chautauquan*, for December. "For one, I have become bewildered. The language is existing. I stopped my munching, and read the whole bill of fare in a Greek restaurant. You can find the Iliad and the Phædo beneath the names and the prices for fried eggs, veal-cutlets, and potatoes swimming in olive oil. The fact is, the language is the most enduring thing here. There is less of waste and wear in this very Greek speech, with all its impalpability, than there has been in the spotless marble of the Parthenon, or the firm hillsides at the stadium. Happy the Greeks, that they have lost so little of their old Attic tongue."

ON my way to Association Hall last week, to hear what Mr. Hughes had to say about Mr. Lowell, I was entertained by a friend's account of an old churchyard at Plymouth, Conn., wherein are to be found some very quaint epitaphs. One of these, written apparently by the biographer of Solomon Grundy, struck me as being particularly good.

> On Sunday he attended meetin,
> On Monday, school, writin and readin,
> On Tuesday, in Death's cold arms sleepin,
> On Wednesday, buried, friends all weepin.

I knew that, in speaking, the untravelled New Englander was in the habit of slighting the final letter in words ending in *ing*, but I don't know that in writing he was liable to commit the same error. Arrived at the lecture-room, I was astonished to hear Mr. Godkin (Editor of New York *Nation*) drop a final *g* from a word to which it was essential. Evidently, then, the silent *g* was not an American provincialism; for Mr. Godkin, gladly as we would claim him as a fellow-countryman, is not a New Englander. Before I had recovered from my surprise, Mr. Hughes had begun his rambling but delightful talk—from the beginning to the end of which not a final *g* was sounded in a present participle or other word ending in *ing!* When he read "The Courtin'," the peculiarity was not so strikin'—if I may be permitted to imitate the example of two such cultivated speakers; but its occurrence at other times was a revelation to me. Since then I have been told that the educated Englishman is as likely to drop his *g's* as the uneducated one is to misplace his *h's*—that the floor of an English pulpit or lecture platform is almost certain to be strewn with the seventh letter of the alphabet, fallen noiselessly from the polished tongue of the polished speaker. But I have heard many cultivated Englishmen speak — Matthew Arnold amongst others—who would no more drop a *g* than an *h*.—*The "Lounger" in The Critic.*

Practical Art.

ELEMENTARY DRAWING—XIII.

IT will be noticed that objects, the representations of which involve the perspective of right-lined plain figures, have been carefully avoided. The intricacies of perspective—that is, when it is treated scientifically, are too great to be readily comprehended by a child who has not studied Euclid, though in order to make use of the innumerable host of familiar objects whose outlines contain straight lines in different positions, as subjects for drawing lessons, it is necessary that something of the principles underlying the science of perspective be understood by both teacher and pupils. It would be wise for the teacher to make himself master of these principles by studying the subject in some such way as that recommended in my articles in former numbers of the EDUCATIONAL WEEKLY. I would not advise the teacher to attempt to teach it in this way except to pupils of the high schools, or those nearly fitted for entering.

The two principles underlying the representation of straight lines, which it is absolutely necessary to know in order to draw properly from objects, are, that horizontal lines which recede from the spectator, appear to terminate in the horizon, if produced far enough ; and that lines appear to decrease in length as their distance from the spectator is increased. The first principle is really contained in the second, as may be shown by drawing two parallel lines of different lengths and joining their extremities. Thus,

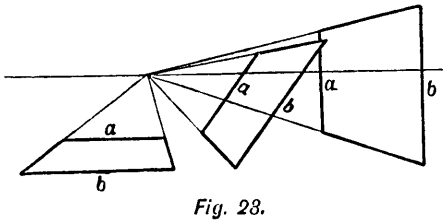

Fig. 23.

in fig. 23, the lines *a* and *b* may represent the front and back edges of a square in different positions, with two of its edges horizontal in each case, the shorter line *a* being the more distant one. The lines joining their extremities will meet if produced, and the point in which they meet will be the representation of a point on the horizon. Children can be satisfied that this is so, by means of a skeleton cube, such as is now supplied with the set of models accompanying the new Canadian drawing books. This cube is almost a necessary part of a drawing teacher's outfit, and will be found to be extremely useful in introducing the subject under consideration in this paper. All the edges of the cube are visible, and so comparisons can be made between the lengths of the lines forming the front and back faces, and their relative positions can be easily seen. By placing the cube in different positions, it can be shown that the faces appear to grow wider or narrower in the direction of the vanishing point, according to their distance from the eye either upward, downward, to the right or to the left. This was explained in a former article in connection with the drawing of circles when viewed obliquely. The necessity of having the back edges of such a figure as a cube, represented as being shorter than the front edges, is nicely illus-

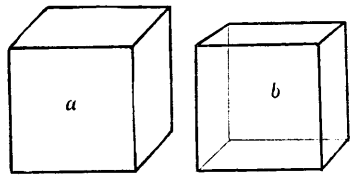

Fig. 24.

trated by such a drawing as *a*, fig. 24. In this the front face is a square, the retiring edges are all parallel and of the same length, and consequently the back edges of the same length as the front ones, yet they appear to be longer. If this drawing is contrasted with one showing a cube in perspective, this deceptive appearance will be still more manifest. In order to represent a cube properly, as *b*, fig. 24, two squares may be drawn, with their sides parallel, one square being smaller than the other, and their corners joined by lines. It will be found that the retiring edges will meet, if produced, thus proving the correctness of the drawing.

At first it is better to confine the application of perspective to views of objects whose edges are either parallel or perpendicular to the direction in which the eye is looking, and in these cases the first-mentioned lines will converge in the point on the horizon towards which the eye is directed, and the others will be drawn in the direction in which they really run. In perspective, the spectator is always supposed to be looking towards the horizon, and objects to be drawn must not be placed too far to the right or left, or above or below the eye, to come easily within the range of vision, which is supposed to extend only 30° on each side of the line representing the direction in which the eye is looking. It will be easy to show that if the retiring lines of an object appear to fall, in order to reach the horizon, the object is above the level of the eye, and that if these lines appear to rise, it is below the level of the eye. If the horizontal lines pass through the object, it shows at once what portion is above, and what below the eye.

To illustrate this principle of convergence of lines, children should be asked to stand in the aisle and compare the lines formed by the edges of the desks on each side of it, holding a ruler in such a position as to indicate their apparent direction. If a mark be placed on the wall at the end of the aisle opposite to the eye, and the same height from the ground, these lines will seem to pass through it, if they are produced. Observations should be made by the children of the top and bottom edges of the maps and blackboards, the cracks in the floor, the tops of the houses, of the windows and doors, in a long block, the edges of the side-walk, the metals of a railway track and the tops of the telegraph poles at the side of it. The reason for this convergence of lines need not be given unless asked for. The fact that it is so will no doubt be sufficiently evident to convince most pupils.

A number of suitable models will help a teacher very much at this stage, as by means of them and the skeleton cube he can illustrate the various points he wishes to explain, and besides, they can be combined so as to form interesting groups for model drawing. Useful ones are:—1 four-inch cube ; 1 four-inch sphere ; 1 cylinder, diameter four inches, height four inches ; 1 disc, diameter four inches, two inches thick ; 1 disc of same diameter, one inch thick ; 1 disc of diameter eight inches, one inch thick, with six inches of the centre removed ; 1 cone, base four inches, four inches high ; 1 triangular pyramid, edges of base four inches, height four inches ; 1 square pyramid of similar dimensions ; 1 hexagonal pyramid, edges of base two inches, height four inches. The last four figures may be made with the height eight inches, as well as four inches. The following should be eight inches long, with edges of ends four inches: 6 square prisms, 6 triangular prisms, 2 cylinders, diameter four inches, one cut across diagonally to show elliptical section. Cones should also be provided, cut to show the elliptical, parabolic and hyperbolic sections. The sectional parts should in all cases be filled with wooden or iron pins to keep the parts of the solid together when not in use. Six prisms, two inches square, eight inches long, six parallelopipeds 2″ x 4″ x 8″ and six 1″ x 4″ x 8″ will also be useful. It would be well to duplicate nearly all of them so as to have two complete sets. They will be nearly all in use at times, for a separate group of objects should be placed in front of the alternate aisles, or every aisle in the schoolroom, so that each pupil will have an undisturbed view of a group. They should be placed above the level of the eye unless arrangements can be made to seat the pupils in a circle with an open space in the centre, where the model should be placed.

A. J. READING.

MR. J. DOUGLAS CHRISTIE, for many yea modern languages master of St. Catharines Colle ate Institute, has accepted, at $1,200 per annum the head mastership of Chatham High Schoo vacated by Mr. W. Aytoun Finlay, who leav the profession to enter law.

Methods and Illustrations

WRITING.

COL. F. W. PARKER.

[WE commend the following able paper to the readers of the EDUCATIONAL WEEKLY. The view advanced, though it may be new to some, finds much favor with educationists. We should like to hear the opinions of our readers in regard to it.—*Editor* EDUCATIONAL WEEKLY.]

I HAVE said that the general introduction of writing in the lowest primary grades was caused by using writing as a prominent means of teaching little children to read.

REASONS FOR USING SCRIPT.

1. The method by which the children have been learning oral language for five or more years is—first, to acquire an idea of thought—second, to listen to a word or words directly associated with the idea or thought—third, *to utter the word or sentence.* The utterance of the word is of the utmost importance in fixing the word in the mind. If a child could hear language without the power to express thought orally, he would no doubt be greatly crippled in his power to hear and understand language. Thought demands expression not only for the purpose of strengthening thought, but also to give clear concepts of words and their associations with ideas and thought.

The analogy between learning to hear language by utterance, and learning to see language (to read) by writing, is complete and perfect. Five or six years of constant practice in uttering what is heard has formed one of the strongest habits of the child's nature. Writing the words he is learning, simply carries this permanently fixed habit, this ever active and constant power, over into the method of learning to read. The failure to use the acquired powers of pupils in each step of progress is one of the great and lamentable mistakes in teaching.

2. Writing a word that has been associated with an idea, follows the method by which every oral word has been learned, and utilizes a powerful habit. The mind associates an idea with a word—and the utterance or writing of the word; the *expression* of the word, is in obedience to a natural and active tendency of the soul.

3. What peculiar form of written or printed words should be used in the first steps? The answer is plain and practical in the highest degree; the forms of written expressions the pupil is to use all his life long.

All conventional forms of expression are learned entirely by imitation; *as the pattern or model is, so will the forms of expression be.*

Printing, or writing a poor hand, is precisely analagous to mispronunciation and bad articulation. There is no time to be lost trying to correct habits, which need never have been acquired. Not one precious minute! It is a fact of common experience that many if not most pupils in our schools struggle through eight years of writing, writing half an hour or an hour daily, and after all cannot express their thoughts upon paper easily and legibly; it is also a well-known fact that every child with normal powers can, under proper teaching, learn to write in the first three primary years.

If the child is to use in writing the normal or the easiest and most legible form of expression, why should he not use from the first and all the time, the forms in reading that he will use all his life, with some considerable exceptions, to wit, prints.

This seems to be in direct conflict with the principle above laid down. If script and print were identical in form, there would be no conflict. They are dissimilar, they must both be learned, and the question is, which should be learned first, or should they both be learned together?

SCRIPT AND PRINT LEARNED TOGETHER.

Both script and print can be learned together, there is no doubt of that; and in acquiring both at the same time, there is no positive infringement upon the main principles of teaching reading. The question is: Does the teaching of script and print together use time and mental power in the most economical way? How to work with the least posible amount of waste, is a matter of immense importance. Can a child learn as well and as quickly by using one as both, in the first steps?

Haste in beginning is generally waste at the end; the point to ascertain is not how much a pupil can learn in three months, but how much and well he can learn in one or two years.

POINTS IN THIS DISCUSSION.

a. Every child should learn both script and print, the former he will use all his life in expressing thought, the latter never.

b. The reproduction of the word or words a pupil is learning, and the expression of the idea or thought associated with the word or sentence, is an exceedingly important aid in learning to read. This reproduction of words should be made in the conventional forms the pupil is to use all his life.

c. Owing to the means it affords for the constant repetition of words in different sentences, the blackboard is by far preferable to the best charts or first readers ever yet made.

A teacher can write much easier and much more rapidly than she can print. The writing she produces upon the blackboard should be, like pronunciation, the exact forms her pupils should reproduce.

d. Children learn script more easily, taking reproduction into the account, than they can print without reproducing the print.

e. In copying from the blackboard, pupils begin spelling, pronunciation and capitalization in forms they will never be called upon to change.

f. The greatest danger in teaching all first steps, reading in particular, is to hurry and overburden the mental power of the learner, thus creating a disgust rather than a love for reading.

A strong appetite for books should be developed in the child. This can be done by working very slowly at first, by teaching a few words thoroughly, so that when pupils do begin print they will succeed every time they try to read a sentence. This end may be reached by using script alone, better than teaching script and print together. It has been urged that parents could help children, and children could help themselves, if print were used. The help, of most parents, at this time, when they cannot see how anyone can learn to read without knowing the names of the letters, would be as a general thing detrimental to the children. Children can help themselves, at first, more by writing the words they learn than in any other way.

g. Children who have been taught script for four or five months, can, under skilful teaching, change from script to print with great ease. One or two days' time is amply sufficient to make the change.

In my experience, pupils who have been skilfully taught script for five months are able to read three or four first readers in the next five months.

WHEN A CHILD SHOULD BEGIN TO WRITE.

I would use script alone in the first steps, because by so doing there is the least waste of time and effort.

Thus far answering the question, "When should a child begin to write?" I have shown the uses of writing, rather than to directly answer the question. A child should begin to use any avenue of thought manifestation when muscles and nerves, to be used in that mode of expression, are capable of action under the direction of the mind, without detriment to the physical or mental nature of the child. It has been proven by more than eighty years' use in Germany, and nearly twenty-five years in this country, that every normally developed child can write as soon as he begins to learn to read.

It has been said by a person who ought to be good authority, that children should not be taught to write until they have thoughts to express. The suggestion that little five-year-old children have no thoughts to express, is eminently ridiculous.

Very much of the reasoning concerning what children can and should do, and upon what they cannot, and should not do, is done from a lofty, theoretical height, far above (or perhaps below would be a better word) an intimate knowledge of the child and the facts.

A theoretical leader, who does not constantly temper his theory by careful and

continual practice, is too often a blind leader of the blind. I have lately heard of two prominent normal school teachers who go down into the primary schools and teach, one hour a day. Stock arguments against progress in education would be at a great discount if all principals, superintendents, and professors of pedagogy would do this. Go then, Sir Authority, and do likewise.—*N. Y. School Journal.*

LESSONS ON PRACTICAL SUBJECTS.

[NOTE.—The following lesson is designed for the teacher's use among the older children of our public schools. As a rule, the lessons will probably not be intelligible to children under twelve, and, in any case, it will be necessary to proceed very slowly and carefully in giving them to the advanced classes.—A good plan is as follows: Let the lesson be read to the children slowly, and with any additional explanation or illustration of the subject that may occur to the teacher. The teacher may then ask the questions given at the end of the lesson, or may test the children's understanding of what has been read in any way that commends itself.]

WHAT IS BARTER?

IN all civilized countries people are so accustomed to the use of gold and silver money, that they seldom stop to think that there was once a time when these precious metals were not used in buying and selling.

We will try and give you some idea of how people managed to get along without money in those old days—how they first felt the want of it, and how at last gold and silver came to be used for that purpose.

In the earliest stages of the world every man hunted and fished for himself, made his own weapons and such clothing as he used, and did not buy or sell anything. But if one man had collected more bear-skins than he needed and wanted more venison, he looked about for some other man who had more venison than he needed, and then the first man exchanged his extra bear-skins for the other man's venison.

The process of exchanging goods is called barter. It is the simplest kind of trade, and is still the only way of doing business among some savage tribes. Very likely some of the boys present have exchanged or, as they would say, "swopped" knives for fish-hooks, tops, or marbles. This is really bartering, and it is the way in which our ancestors did all their business centuries ago.

But by-and-by there came to be more kinds of things. It was not always easy to find two persons who wanted each other's goods. For instance: "A tailor has only clothes to sell. If he wanted a loaf of bread, and barter still prevailed, he would have to offer a baker some article of clothing—a coat, for instance—in exchange for bread. But probably the baker would have all the coats he needed. He might say he wanted a stove. Then the tailor would have to find a stove-maker who was willing to exchange a stove for a coat, get the stove in this way, and then give the baker the stove for the bread. If he could find no such stove-maker, he would have to hunt for another baker. He might starve before he could find any person having bread to sell who wanted a coat." Though there were no such things as stoves in the days of which we speak, there were other things which could be bartered; and you can easily see that people were sometimes put to a great deal of trouble in trying to exchange the things they did not need for others which they did need. They began to wish for some *one thing* which everybody would be willing to take in exchange for his goods—knowing that he could exchange it for anything that he wanted.

At last, cattle came to be used for this purpose; for at one time these animals were the most useful and valuable possessions of a people. They gave men hides for tents and clothing, meat to eat, and milk to drink. They could be moved from place to place with care and time, and would last for some years. A man's wealth was then reckoned in cattle; for instance, instead of saying, "He is rich! he is worth ten thousand dollars, they said, "He is rich! he owns a thousand cattle." People were willing to exchange their goods for what was worth so much, and in this way cattle came to be used as a help in making exchanges. At this time, if a man had bear-skins he was not obliged to wait until he could find a man who wanted to part with his venison, and at the same time wished a bear-skin, but he could sell his skins at once for cattle, and then could sell his cattle for venison. The owner of the venison might not want bear-skins, but he would be quite willing to take cattle in payment for his venison, knowing that he could readily exchange his cattle for any article he did want.

We have said that people felt the need of some one thing which everybody would be willing to take in exchange for his goods. Suppose they had settled on gravel or earth as this one article, and had said, "If a man wants to exchange a coat for a pair of shoes, let him take a bushel of gravel for the coat, and then exchange the gravel for the shoes." You can easily see that this would be absurd; for men would not be willing to exchange their coats and shoes for something of so little value as a bag of gravel. Would any boy present exchange a four-bladed knife for a handful of pebbles? It is clear, then, that people must have something in exchange for their goods that is worth more to them than the article they wish to sell.

As cattle were the most useful and valuable articles they owned, they used them as their means of exchange; and by using a means of exchange, or, as people say, a "medium of exchange," a great deal of time and trouble is saved.

QUESTIONS.

1. How did men live in the early ages?
2. How did they manage to get articles they wanted, if they had no money to buy them with?
3. What is barter?
4. As there came to be more people in the world, what trouble arose in bartering?
5. Who can tell about the tailor who had clothes to exchange?
6. What did people begin to wish for in making their bargains?
7. What means of exchange did they use at last?
8. Why did they take cattle?
9. Why was every one ready to exchange his goods for cattle?
10. How did they then make their exchanges?
11. Why was it easier to make exchanges by means of cattle?
12. Why would not gravel have answered as well as cattle?
13. What do people always want in exchange for their goods?

—*From Practical Lessons.*

COMMON FAULTS IN OBJECT LESSONS.

DAVID SALMON.

(Continued from page 13.)

I COME now to faults connected with the

ILLUSTRATIONS.

I pass over at once what writers on school management call "oral illustrations." These may be useful in the right place, but I am more familiar with their employment in the wrong place. Again and again have I heard something like this:—"If I had a tumbler here and filled it with water, then put a piece of paper over the mouth and inverted the tumbler, the water would not run out." One is tempted to ask—"Why, in the name of common sense, haven't you got the tumbler, and the water, and the piece of paper, and why don't you perform the experiment instead of talking about it?" This is a case in which Touchstone's remark about "much virtue in *if*" does not apply.

Too often the most noticeable thing about the illustrations of a lesson is the absence of them. An illustration serves two purposes; it attracts attention, and it makes that clear which would otherwise be obscure. If the teacher is talking about an object, he should always show a specimen of it. The children may have seen it a thousand times, but familiarity has an attraction for them as well as novelty; they welcome as warmly the oft-repeated fairy tale as the one they have never heard before. Moreover, the teacher may wish to point out in the object some peculiarity which the children have not hitherto observed, and even if they have, "the habit of verification . . . is invaluable

as a safeguard against vague or half-formed ideas."

Pictures are worth having where nothing better can be got, but the best picture is not so good as the thing itself. Suppose, for example, that a lesson has to be given on a Fish. A picture will show the shape and position of the gills and of the fins, but a goldfish in a bowl, or even a humble stickleback in a bottle, will, in addition, show the gills and fins at work. Again, in a lesson on a Cat, if the teacher has provided himself with the living animal, the children will be able to note the roughness of the tongue and its spoon-like appearance when lapping, the pads beneath the feet, the action of the claws and the sheaths which protect them—none of which could be seen in a picture.

In lessons on Manufactures, specimens showing every stage from the raw material to the finished article should be procured whenever possible, and, if the teacher can perform, no matter how rudely, the various processes which he is describing, his descriptions will be understood and remembered. I have seen paper-making illustrated in this way. I have also seen a clock pulled to pieces, a book bound, and a lock put together, in the presence of a class.

If a lesson involve something of science, it had better not be given at all than be given without sufficient illustrations. The object of science-teaching is to foster the habit of observation and to store the mind with useful knowledge; and how can observation be fostered when there is nothing but a teacher and a blackboard for it to be exercised on, or how can useful knowledge be acquired when words are made to take the place of things? I have heard a lesson on the Composition of Air given without a single experiment; for any beneficial result it might as well have been given in Dutch. If the teacher had prepared jars of oxygen, nitrogen, and carbonic acid, he could have made the class *see* the properties of those gases (and seeing is remembering as well as believing); he could have proved by ocular demonstration that substances will burn with great rapidity in oxygen but will not burn at all in nitrogen, and hence he could have elicited the necessity for "diluting" the one element with the other; he could have shown the proportion of nitrogen to oxygen, and made clear that carbonic acid is one of the products of respiration. Such a lesson would have been like a good meal; the lesson given was like the banquet Timon of Athens provided for his flatterers—only lukewarm water.

I have known teachers prepare experiments carefully and perform them skilfully and yet make little use of them, for it must be borne in mind that *an experiment is not necessarily an illustration*. An experiment exemplifies some principle but does not illustrate the lesson unless the teacher makes perfectly clear what the principle is, and shows how that particular experiment exemplifies it. Take, for instance, an experiment alluded to just now, that for proving the relative amounts of oxygen and nitrogen in the air. One teacher says, "A fifth of the atmosphere is oxygen and the remainder chiefly nitrogen, as you will see." He then takes a bit of phosphorus, puts it on a piece of cork and thus floats it on the water in a shallow dish. He lights the phosphorus and places a bell-jar over it. When the phosphorus has ceased to burn he points out that the water has risen some way in the jar, and adds, "That proves what I told you." So it does, but how many of the children will understand that it does? Another teacher will perform the same experiment, but by a series of questions he will make clear that the jar at first contained a mixture of oxygen and nitrogen—otherwise air; that the burning of the phosphorus exhausted the oxygen; that the phosphorus went out before the whole of it was consumed because there was no more oxygen; that the water rose to take the place of the gas used up, and that therefore the height of the water is the measure of the oxygen. He will then (perhaps by a strip of paper divided into fifths which he has stuck on the jar) show what part of the original contents the oxygen was. An intelligent critic would credit the first teacher with an experiment, and the second with an illustration.

Sometimes teachers who have taken trouble to get specimens seem struck with shyness when the time comes for using them. They hold them up for a moment and then, as if amazed at their own temerity, hastily withdraw them from view. I need hardly say that the children should have ample opportunities for observing whatever there is to observe; pictures should be large enough for a whole class to see at once; small objects should be passed round.—*Teachers' Aid.*

(To be continued.)

COPY-BOOK WRITING.

EDWIN SHEPARD.

THE teacher who can show at the end of the term a set of writing-books with copies neatly imitated and free from blots and other blemishes so commonly found, has been a a success in this department of her school work. No other subject save drawing requires as much care, and with this exception no other subject so quickly reveals the character of the work done. *Good*, *bad*, or *indifferent* is written on its face; our criticism of it is instantaneous, and in most instances correct.

The beginning is everything. "Well begun, half done," applies here with special force. I dread to start my class in their copy-books, and never yet have been satisfied with the result of the first lesson. Some careless boy or heedless girl will begin in the wrong place, write too much, or in some way disfigure the page. John and William are anxious to place their names prominently on the cover or otherwise embellish it. The whole tendency on the part of the teacher, at this time, is one of repression. With fear and trembling, and at a snail's pace, begin this work. Tell the pupils at the very beginning what you want them to accomplish. Show them a well-written book saved from last year's work, contrast it with one blotted and otherwise abused, and then make it the object of their term's work to equal the best one.

If the pupil is going to write in a copy-book for the first time, great care must be taken in showing him how to use it. Teach him in what position to place it upon the desk, how to turn the leaves, and where to place the left hand. Repeat these exercises several times, till all are familiar with the movements, and can, if the class be properly graded, move in perfect unison. Tell them what a column means, and have them point to the first and second ruled columns. Remember that all the implements of writing are new to the child, and that his future success greatly depends upon knowing how to use them.

THE FIRST LESSON.

Place upon the blackboard a perfect copy ruled as in the book, write this large enough and in such a position that all can see. You are to teach from this copy, and the failures you make in placing it upon the board are the same the pupil will make in imitating the copy; you are thus better prepared to point out errors and show how to overcome them. Correct but one fault at a time; bend your whole energy toward the correction of that fault; see to it that they produce the correct form.

Have some pupil come to the board and make the letter he has the most difficulty in forming. Let some pupil point out the principal fault, and then let the pupil try again. It will take many trials to get the correct form from some pupil especially slow in this work; but repeated trial, under kind and helpful criticism, will soon produce, at least, a better result. You can now send several pupils to the board, and drill in the same way upon the form they are going to write in the book. This is a most excellent method, which from long observation I can heartily recommend. It develops the idea of form in a shorter time than any I ever yet tried. —*American Teacher.*

MISS M. LAING, teacher of the 2nd department of the Teeswater Public Schools, was the recipient of several valuable presents from her pupils on the occasion of her severance from the school last week. She has accepted an engagement in California.—*Teeswater News.*

Correspondence.

THE WATERLOO RESOLUTIONS.

To the Editor of the EDUCATIONAL WEEKLY.

THE discussion caused by the Waterloo resolutions has been very interesting to me, and, though heartily in accord with the idea of making the teaching profession permanent and paying, still I cannot see either justice or reason in some of the plans proposed by these resolutions to accomplish this end. The question arises—what will be the effect of requiring a fee from candidates for third-class certificates? How will this secure the desired result? Suppose that such a fee is required, then, is not the ability to pay this fee made part of a teacher's qualification? Do you not indirectly say that the wealthiest student will make the most successful instructor? Do you not introduce the dangerous principle that wealth and ability, not ability alone, form the true test of fitness for the position? You, by imposing this fee, establish yourselves a close corporation and talk thus: "Let it be our aim to discourage all students from entering the profession." Your conduct reminds one of the striking mechanics, who, in making terms with their employer, demanded that he should take no apprentices. This worked very well until the questions arose: Should our sons wish to follow our trade how are they to learn it? Is our trade not in danger of becoming in a few years an unknown one from the want of trained workmen to engage in it? No army can be long maintained without recruits, and a great part of the educational advancement of Canada can be traced to the vigor and ambition of the young life ever entering the teaching ranks.

That the teaching profession is not a paying one is too true, but this is caused chiefly by the unprofessional practice of underbidding and by the granting of extensions to third-class certificates. Is a normal school course of training any help to a teacher? Does it give him better modes of dealing with a child's mental faculties? Does it further the educational progress of the country? I venture to affirm that all those who have received the benefit of such a course will individually say: "It has done me incalculable good." Then why does the Education Department say, in effect, the contrary? Why is it that so many are permitted to continue teaching in the mind-killing processes they have picked up? It is but reasonable to suppose that the majority of those who are most willing and anxious to take advantage of the extension system never intend to follow the profession, but are simply making of it a stepping stone. Underbidding is one of the great drawbacks, but who are the most likely to prove successful in this—the young and untried teachers or those who can claim a three years' experience? Who are the men guilty of underbidding in all professions? Is it not the quacks or those who, knowing their lack of qualification, seek to secure patronage by the offer of cheap services and the decrying of their more persevering neighbors? Hoping that much benefit to the educational interests of the country, and to the teaching profession in particular, may result from the interchange of thought caused by those resolutions, I am,

A PUBLIC SCHOOL TEACHER.

QUESTIONS AND ANSWERS.

[ALL communications for this department must be accompanied by the name and address of the writer, though not necessarily for publication; they must refer to the work of education; their language must be definite and terse; they must be on slips of paper separate from all other correspondence; and they must be so written that they can be sent directly to the printer. No other communications can be taken notice of. Correspondents answering or referring to any question are requested to give the number of the question for convenience of reference.]

No. 7. *Q.*—Please advise me as to a really good work in perspective drawing, and its price. What work would you recommend for use in schools on perspective? What on practical geometry.—A. C., Cayuga.

A.—"Linear Perspective," by R. Burchett, published by Chapman & Hall, $2.25 laid down in Canada, is good. Davidson's "Practical Perspective," Cassell & Co., 3s. sterling, though not so complete, might be useful. Lewis' "Elements of Perspective," Geo. Rowney & Co., 30c., is simple and might be used in schools, though not intended as a text-book. Davidson's "Linear Drawing," Cassell & Co., 2s. sterling, is a useful book on practical geometry.

Educational Intelligence.

MISS JENNIE MCRAE is engaged for the Belleville Central School.—*Intelligencer.*

MR. W. H. LIDDICOATT has been re-engaged in Thorndale for 1886 at $600.—*London Advertiser.*

MISS L. MACKENZIE and Miss A. Patterson, are engaged for 1886 in Beeton School.—*Beeton World.*

IN the Stratford Collegiate Institute the number on the roll for the past year is 295, the average attendance 172.

THE report of the Woodstock High School for 1885 shows an increase in attendance of 60 per cent. over 1884.

MISS JENNIE STORK, late of Hamilton Training Institute, is to teach in Brampton High School at a salary of $500.

MR. CHARLES H. WALROND has been appointed assistant in Belleville High School at a salary of $600.—*Intelligencer.*

A SIX weeks' session of the normal school, specially for third-class teachers, will open in Winnipeg on Jan. 5th.—*Manitoban.*

ALL but one of the students of the Stratford Model School were successful at the recent examinations.—*Stratford Herald.*

MISS NELLIE DRYDEN, of North Dumfries, has been engaged to teach the fourth division of the Hespeler Public School.—*Galt Reformer.*

MISS SCOTT has been presented with a gold medal for obtaining the highest number of marks at Strathroy High School.—*St. Thomas Times.*

MR. J. J. BELL, of Edgeley, has been engaged in Port Rowan as assistant high school teacher in the place of Mr. M. Foster.—*Norfolk Reformer.*

MR. RICHARDSON takes charge of the Cartwright School for 1886. Mr. Geo. Wilson gets $500 salary at Fenelon Falls.—*Bowmanville Statesman.*

MR. ARCH. MCPHERSON has been appointed teacher of the 3rd division in the Galt Central School, caused by the resignation of Mr. Stewart.—*Galt Reformer.*

MR. F. L. RIDDLE, B.A., formerly of Port Dover, has been appointed classical master in St. Mary's Collegiate Institute at a salary of $800.—*St. Mary's Argus.*

THE staff of the Brussels Public School for 1886, is composed of Mr. John Shaw, Principal, Miss Sayers, Miss Hambly, Miss Richardson and Miss Ross.—*Clinton New Era.*

PRESENTATIONS have been made to Mr. A. G. Snyder, of Milleroches School; Mr. Styles, of Morrisburg Public School, and Mr. R. C. Rose, of Morrisburg High School.

THE Clinton Board of Education have published a detailed statement of the condition of the public schools during the past five years. It shows a steady increase in attendance.

MR. WALLACE A. MACPHERSON, of Warkworth, has been appointed assistant master of St. Mary's Collegiate Institute for the first half of 1886, at the rate of $500 per annum.—*St. Mary's Argus.*

MR. E. J. MCINTYRE, B.A., late modern languages master of Pickering College, has been appointed to a similar position in St. Catharines Collegiate Institute, to succeed Mr. Christie—salary $1,000.

MR. JOHN MCBRIDE, M.A., has resigned his position as head master of Richmond Hill High School for the purpose of studying medicine. His pupils presented him with a case of surgical instruments.—*Ex.*

A VALUABLE clock has been presented to Mr. Lyman H. Steinhoff by the rateyayers of S. S. No. 4, Townsend, where he has taught for four years. The presentation was made on the occasion of Mr. Steinhoff's marriage.—*Norfolk Reformer.*

MR. JAMES E. GLENN has re-engaged in Schoo Section No. 13, Ameliasburgh; making the tenth consecutive year for him in that section. He has also been elected First Deputy Reeve for the Township of Ameliasburgh for the year 1886.

THE prize offered to the pupils in the "I. A." Form, Collegiate Institute, taking the highest standing in Canadian History was divided and awarded to Wm. Mullins and Walter Buckingham, who obtained the same percentage of marks.—*Stratford Herald.*

THE following changes have been made in the teaching staff of the Orillia Public School; Miss Cooke, promoted to grade v.; Miss Creen, to grade vi.; Miss Pirt, appointed to grade vii.; and Miss E. Chase, to grade viii. Others as before.—*Orillia Packet.*

MISS BEATRICE BRUCE and Miss Belle Rowand, both pupils of Walkerton High School, have been appointed to their first positions as teachers. Miss Bruce takes charge of a school in Kent, and Miss Rowand as assistant in a Lambton School.—*Bruce Telescope.*

ONE of the McNab Township schools has been closed owing to the smallpox scare. A young man named Disbrowe, residing in that township, died of the scourge last week. There are eight or ten cases in that locality, but as they are almost completely isolated, there is not much danger of the disease spreading.—*Prescott Messenger.*

Examination Papers.

HIGH SCHOOL ENTRANCE.

DECEMBER, 1885.

LITERATURE.

Examiner—JOHN SEATH, B.A.

NOTE.—A maximum of 5 marks may be allowed for neatness.

NEW ONTARIO READERS.

1. Britannia needs no bulwark,
No towers along the steep;
Her march is o'er the mountain-waves,
Her home is on the deep.
With thunders from her native oak,
She quells the floods below—
As they roar on the shore,
When the stormy winds do blow;
When the battle rages loud and long,
And the stormy winds do blow.

The meteor flag of England
Shall yet terrific burn,
Till danger's troubled night depart,
And the star of peace return.
Then, then, ye ocean-warriors!
Our song and feast shall flow.
To the fame of your name,
When the storm has ceased to blow;
When the fiery fight is heard no more,
And the storm has ceased to blow.

a. Write explanatory notes on 'bulwark,' 'steep,' 'thunders,' '*native* oak,' 'quells,' '*meteor* flag,' 'Shall *yet* terrific *burn*,' 'danger's troubled *night*,' 'the *star* of peace,' 'Our song and feast shall *flow*,' '*fiery* fight.'

b. Who is 'Britannia' and why does she need 'no bulwark, no towers along the steep'?

c. What does the poet really mean in *ll.* 2 and 4?

d. Express in simple language the meaning of *ll.* 5–10.

e. Why not 'will burn' and 'departs'?

f. What other expressions are there in the poem for 'the flag of England' and 'ocean-warriors'?

g. Where in these stanzas does the sound of the words resemble the meaning?

h. What feelings should be expressed in reading these stanzas?

2. Poor Tom! the first and bitterest feeling, which was like to break his heart, was the sense of his own cowardice. The one vice which he loathed above all was brought in and burned in on his own soul. He had lied to his mother, to his conscience, to his God. How could he bear it? And then the poor little weak boy, whom he had pitied and almost scorned for his weakness, had done that which he, braggart as he was, dared not do.

The first dawn of comfort came to him in vowing to himself that he would stand by that boy through thick and thin, and cheer him, and help him, and bear his burdens, for the good deed done that night. Then he resolved to write home next day and tell his mother all, and what a coward her son had been. And then peace came to him as he resolved, lastly, to bear *his* testimony next morning. The morning would be harder than the night to begin with, but he felt that he could not afford to let one chance slip.

a. What is the subject of each of the above paragraphs?

b. Give for each of the following a meaning that may be put for it in the above: 'was like to break his heart,' 'braggart as he was,' 'he would stand by that boy through thick and thin,' 'to bear *his* testimony.'

c. Distinguish between 'loathed' and 'disliked,' 'scorned' and 'despised,' and 'peace' and 'comfort.'

d. Write explanatory notes in each of the following expressions: '*burned in* on his own soul,' 'the first *dawn* of comfort,' 'bear his burdens.'

e. Tom's 'first and bitterest feeling' was 'the sense of his own cowardice': what other bitter feelings had he afterwards?

f. Tom had protected Arthur: explain how he felt himself to have been guilty of cowardice? How had 'poor little weak' Arthur shown himself to be braver than Tom?

g. Why should the morning be harder to begin with than the night?

h. The lesson to which the above passages belong is sometimes called "Tom Brown's Heroism," and sometimes "Dare to do Right": state what you think of the fitness of these titles.

i. What lessons for our guidance in life may we learn from the story of Tom Brown as told in your Reader?

3. Quote from the passages you have memorized one containing one or more noble thoughts, and give its meaning in your own words.

ARITHMETIC.

Examiner—J. E. HODGSON, M.A.

NOTE.—A maximum of 5 marks may be added for neatness.

1. Define the following terms: Factor, Prime Number, Multiplication. Write down all the prime factors of 2310.

2. *a.* Reduce to simplest form: $\frac{9534}{15663}$.

b. What is the least number from which 1224 and 1656 may each be taken an exact number of times?

3. A man who lost $\frac{1}{3}$ of his fortune in one year, and $\frac{2}{5}$ of the remainder the next year, had $900 left. Find the amount of his fortune at first.

4. What quantity taken from $159\frac{1}{4}$ will make it exactly divisible by $12\frac{5}{8}$?

5. Express 3.74976 minutes as the decimal of a week.

6. What will 11750 feet of lumber cost at $27.50 per thousand?

7. Name the units of length, time, and sterling money.

8. Find the simple interest on $800 for 3 years at $5\frac{1}{2}$ per cent.

9. A cistern has three pipes: the first will fill it in ten hours, the second in 12 hours, the third in 15 hours. In what time will they together fill the cistern?

ORTHOGRAPHY AND ORTHOËPY.

Examiner—J. E. HODGSON, M.A.

NOTE.—Twenty-five of the fifty minutes allowed for this subject are to be allotted to A, which is to be read to the candidates three times—the first time to enable them to collect the sense; the second time, to enable them to write down the words; and the third for review. At the end of the twenty-five minutes, the presiding examiner will distribute B among the candidates, who will, after writing their answers, fold them and hand them in with their work under A. Two marks are to be deducted for each mistake in spelling, and one for each mistake in pronunciation.

A

The fine English cavalry then advanced to support their archers, and to attack the Scottish line. But coming over the ground which was dug full of pits, the horses fell into these holes, and the riders lay tumbling abont, without any means of defence, and unable to rise from the weight of their armour.

The bracing keenness of the mountain air, while it invigorates, lends lightness and buoyancy to the steps in ascending the steep ascent.

European, oblique, complete, seize, vacancy, retrieve, legible, cautious, jealousy, curable, leisure, Wednesday, February, initial, falsify, similarly.

B

Indicate fully the pronunciation of the following words: Towards, campaign, incomparable, baptist, barrel, auxiliary, anticipate, aisle, indict, indisputable, inhospitable, forecastle, ewe, choir, toll, humor.

Accentuate the italicised words in the following:

The *convict* was sentenced to twenty lashes.

The *imports* exceed the *exports*.

James was a *gallant* in his manners.

The lawyer entered a *protest*.

The *conflict* continued three days.

The *refuse* was removed during the night.

THE Winnipeg School Teachers held a convention on Dec. 18th. Miss Kerr and Miss Currie illustrated their methods of teaching reading; Mr. Bannerman read a paper on "The Relation of our Schools to the Learned Professions"; Mr. Goggin read a paper on "Questioning"; Superintendent Somerset pointed out the provision the Education Department had made in accepting the degree of B.A. as equivalent to a first-class certificate and the previous examination of the University of Manitoba as equivalent to a second-class certificate. —*Manitoban*.

THE teachers of West Victoria assembled in convention at Lorneville on Dec. 18th. The following subjects were discussed: Composition—Mr. Gilchrist; School Management—Mr. Ross; Attention—Mr. McDonald; Factoring—Mr. Cundal; Success in Teaching—Mr. Smith; Dark and Bright Spots in a Teacher's Life—Mr. Rogers; The Life of Humboldt—Mr. Campbell; School-room Etiquette—Mr. McFarlane; Reading and Spelling—Inspector Knight; Chemistry of Water—Mr. McEachern. —*Condensed from Victoria Warder*.