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Educational Weekly

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The Educational Weekly,

Edited by T. ARNOLD HAULTAIN, M.A.

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JAMES V. WRIGHT, *General Manager.*

AT the last meeting of the Senate of the University of Toronto, one or two interesting items of business were transacted. On motion of Dr. Oldright, seconded by Dr. Wilson, a statute received its final reading, which provides that undergraduates pursuing an honour course, who have obtained honours, but failed in pass subjects attached to such course, may be permitted to present themselves in September in those pass subjects in which they have failed, and on passing in such subjects be allowed to proceed in honours in the following year, provided that no such undergraduate shall be classed in honours in the year in which he shall have so failed. This will be regarded as a boon by many, but we fear it will have the effect of making specialists look with still greater disgust than they now do upon the pass subjects totally unconnected with their favourite branches, which they are compelled to read in addition to their honour subjects.

Mr. Houston gave notice that at the next meeting he would move that English texts by authors prior to Chaucer, including selections from the Anglo-Saxon, should form part of the course for honours in the third and fourth years; also that a graduating department should be created to include Latin and the Romance languages, with such additional subjects as will make it a fair equivalent for the present graduating departments of classics and modern languages respectively. He also moved, seconded by Mr. King, that a special committee be appointed to report what changes, if any, it may be expedient to make in the Arts course under the head of Civil Polity, and also in the conditions on which the Blake scholarship is offered for competition. Adopted. We are glad to see some interest being kept up on the subject of Civil Polity, and hope that some day it will eventuate in the endowment of a chair in that branch.

Mr. Houston's motion that whenever English is prescribed as part of the pass course in the arts curriculum, it shall include the critical reading of prose texts for rhetorical purposes was lost.

On motion by Mr. Embree, seconded by Mr. Dickson, the following resolutions were referred to a special committee:

1. That the same principle that is now applied to the classification of honour candidates of the fourth year be also applied to pass candidates in all examinations.

2. That the terms "general and special" be sustituted for "pass and honour" in describing the courses taken.

On motion of Mr. Embree, the following resolution was referred to the Board of Arts Studies:—That first-class teachers' certificates be accepted *pro tanto* in lieu of the senior matriculation for first year examinations, and teachers holding grades A and B be allowed honour standing of the first and second class respectively in the subjects in which those certificates are taken.

THE following interesting debate on the subject of the proposed College of Preceptors for Ontario took place at the West Bruce Teachers' Association:—

Mr. Powell said he had given the matter some attention, but did not fully comprehend it in all its bearings. The changes proposed were unquestionably radical in many respects. Principal Dickson's scheme was, however, only an outline and could be modified. He gave a short account of the history of the movement and dwelt upon the leading feature of the scheme paying special attention to the advantages teachers would derive from the formation of the proposed college.

Mr. Freer favoured the movement. Teachers should have more direct control of educational matters than they at present possessed. They wanted unity of action, increase of professional spirit and independence. Education should, if possible, be placed outside the influence of politics. Men of experience and independence should direct and control the examination of teachers. The changes proposed would benefit the country as well as the profession. Already the country is losing confidence on account of irregularities in examinations and the granting of certificates. The present minister is a good man, but he will not always be in office, and we cannot calculate on having his place filled with men of the same experience and independence.

Dr. McLellan considered the proposed changes too sweeping. They asked the government to surrender some of its most important functions A college of preceptors would do much to improve the teachers' position and for the cause of education. But teachers must be contented with moderate concessions on the part of the government.

Mr. McCung believed the move was in the right direction, and, though difficulties existed, urged upon the association to declare in favour of the proposed college.

Mr. Powell moved, seconded by Mr. Freer, "that in the opinion of the teachers of West Bruce in convention assembled, it is desirable for the purpose of promoting sound learning, and of advancing the cause of education, that a college of preceptors be established, based upon the principles and embracing the main features the of scheme outlined by Principal Dickson at the last annual meeting of the O.T.'s association in Toronto."

The resolution was passed almost without opposition. Only two votes were cast against it.

Contemporary Thought.

TEACH religion at home; teach morals and manners at home, if you mean they shall have good ones; but don't do it by dogmatizing. Have order and system, but don't have too many rules. Don't depend on Church and Sunday-schools to teach the children religion. They are helps, but no good unless practice at home coincides. Rules are no benefit if allowed to be broken. One is enough if enforced, namely: "Do as you would be done by," and never let an opportunity pass to illustrate it by practical example. Enforce promptness and diligence in work and study. Cultivate reverence in your family; reverence for age, for persons in authority. Reverence is the foundation of good manners.—*Ex.*

MR. C. LE NEVE FOSTER and Mr. Gregory, the gentlemen appointed by the Royal Commission to report upon the minerals and rocks shown in the Exhibition, have just completed their examination of the Canadian exhibits. Mr. Foster, who reports more particularly upon the minerals of economic importance, ores, building stones, etc., spent a day and a half in an inspection of Canadian exhibits, and expressed himself much pleased with the extent and excellence of the collection brought together by the Geological Survey. He was especially pleased with the large series of silver ores from the Port Arthur district, on the west shore of Lake Superior, many of which are very rich, and expressed the opinion that as that country becomes opened up, it will become one of the most important mining districts in the Dominion. Mr. Gregory, the other gentleman appointed to inquire into Colonial minerals, reports more particularly upon the minerals of scientific interest, and those used in the fine arts, for jewellery, etc. Of these Canada has not many on exhibition, the collection consisting almost exclusively of minerals and rocks of more immediate economic importance.

THE Right Hon. A. W. Peel, Speaker of the House of Commons, distributed recently the prizes in connexion with the Cambridge local examinations at the Town Hall, Leamington. Mr. Peel pointed out that since the beginning of the present century education had completely changed. Then, as witty Sydney Smith said, a university education was practically restricted to Latin and Greek, whether a man was intended for a clergyman or a duke, and the student was taught to estimate his progress in real wisdom by his ability to scan the phrases of the Greek tragedians. He was not decrying Latin and Greek—both were excellent in their way—but it was quite possible to give them undue prominence, and to neglect those things which the spirit and requirements of the time rendered absolutely essential. Since Sydney Smith's days everything had been changed, and the Universities of Oxford and Cambridge were now engaged in honourable rivalry in promoting university local examinations, and in sending out men of the highest attainments to lecture on special subjects. They had tested the character of schools, and had raised the standard of education; and they had affiliated to them provincial colleges. The authorities of the centres of university educational culture had thus done their part, and a hearty and ready response was being made from the schools and educational centres throughout the country.

"A CRY, and certainly not a senseless cry," says the *Week*, "has been raised by a correspondent of the *Mail* about the overcrowding of the professions. We have pointed more than once to one source of it—the one-horse university system, which, by lowering the standard of graduation, as it inevitably does, tempts into learned professions a number of youths whose proper calling is agriculture or trade. The remedy is a high standard, which can be maintained only by a national university. The number of those who graduate at present is too large for the intellectual labour market, and the result is a glut, which will be aggravated if women enter the professions. Convocation orators talk as if it ought to be the great object of our aspirations to extend university education to every farmer and mechanic in the land, and unthinking audiences applaud the noble sentiment. Experience proves that youths who have been at college, even at an agricultural college, never go back to farm work or to the store. A showy and pretentious system of public education has also a good deal to answer for, though rather in the way of overcrowding the cities than the professions. It is the reputed custom of the Jews to teach every boy, no matter what may be the condition of his family, some handicraft on which he can fall back in the last resort, as the means of making his bread. The custom is not unworthy of imitation; it might save graduates for whose intellectual labour there is no market from helpless destitution or worse."

WE now have a true theory of the influence of the environment on an animal. Sensation being understood, the animal proceeds to adapt itself to its surroundings by the adoption of appropriate habits, from which appropriate structures arise. Without such response on the part of the animal, the greater part of the world would have remained uninhabited by all but the lowest forms of life, and these too might have been extinguished. From the simplest temporary methods of defense and protection, animals have developed the habits of laying up stores, of building houses, of the arts of the chase, of migrations over wide territories. There can be no doubt that the constant exercise of the mind in self-support and protection has developed the most wonderful of all machines, the human brain, whose function is the most wonderful of phenomena, the *human* mind. And the acts of other parts of the organism, which have been the outcome of this process, have produced the varied structures which to-day constitute the animal kingdom. It is thus shown to a demonstration, by means of the principle of kinetogenesis, that evolution is essentially a process of mind. The source of the consciousness, which is back of it, is at present an unsolved problem. That it has existed and does exist, there can be no question, and there is no sufficient reason for supposing that it will not continue to exist.—*From "The Energy of Life Evolution," by Professor E. D. Cope, in Popular Science Monthly.*

THE following sketch of Ex-Mayor Edson's (of New York) business career appeared recently in the weekly *Tribune:* "I have never taken what might be called an active part in politics, and have not undertaken to master the intricacies of the profession of a politician. I have never met with any great success in my life. I have never entered into the field of speculation, but have always adhered to my legitimate business. I might have been much richer or much poorer if I had gone outside of what might have been called the legitimate but comparatively slow way of making money. I have never had the idea that very great riches lead to very great happiness, or that happiness is proportionate to the size of the purse. My parents," said Mr. Edson, "taught me in the most impressive manner the precepts of honesty, sobriety and integrity. I have endeavoured to make my life conform to their teaching, and to that I attribute whatever of success I have met with. The rules that I have followed all my life, and which I regard as necessary to success in business, are:—

"1. Close attention to details. And this means sometimes working nights and during hours usually devoted to recreation.

"2. Keeping out of debt. Regulating expenses so as to keep within your income, and at all times to know just where you are financially.

"3. The strictest integrity. It is rarely that a dishonest man succeeds. He does sometimes, but not often.

"4. Being temperate in habits.

"5. Never getting into a lawsuit. Business ought to be conducted in such a way that there will be no need of lawsuits, and it is better, often, to suffer a little wrong than to get into court about it."

ESPECIALLY interesting is it at this moment to notice that the schools of Quebec are supported by State grants, a school tax, and by monthly fees. Thus Quebec's common schools are not "free," and in this respect differ essentially from those of Ontario. "We consider," said Mr. Ouimet, "that the fee is a good thing. The parent is thought with us to have a natural duty to perform towards his child in the provision of educational facilities." The supporters of the fee system in England may, indeed, find in Quebec a ready instance from which to draw favourable conclusions, for Mr. Ouimet shows that the present arrangement works satisfactorily. One great point of difference between the English and Quebec systems must, however, be borne in mind in considering this phase of the question. In England, one great argument in favour of "Free Education," or rather the abolition of fees, is that gratuitous instruction must necessarily follow compulsory education; that the State saying to a parent, "You shall educate your children" cannot logically ask that parent to pay for the education of which it compels him to allow the child to take advantage, even at the loss of the present wage-earning value of the boy or girl. In Quebec, however, the attendance of the child is not compulsory, though the payment of fees is. Thus a parent may keep his child away from school entirely and suffer no penalty for non-attendance such as is known in England. All that is required is the regular payment of the monthly fee, which cannot exceed fifty cents (2s.), or be less than five cents (2½d.), and only for its non-payment can proceedings be taken. It is easy to see how such a system would result in greatly increased irregularity of attendance in England. In Quebec, however, it would not, happily, seem to be so. The children are, it appears, sent to school regularly and the fees are readily forthcoming.—*Canadian Gazette.*

Notes and Comments.

"ONE of the great problems of the south," says *The New Orleans Times-Democrat*, "is education. It is the immense amount of illiteracy in this section that has held it back in material progress. With a large proportion of its population unable to read or write, the heritage of war and devastation, it is difficult for the south to advance in prosperity, to improve its agriculture, or become great in manufactures."

WE are requested by the Education Department to announce that the following selections from the Literature prescribed for Third Class Teachers' non-professional examinations will be repeated for 1887-8 :—

PROSE.

No. XV.—ADDISON—*The Golden Scales*—pp. 88-93.

No. XXII.—GOLDSMITH—From *The Vicar of Wakefield*—pp. 127-133.

No. LXIII.—THACKERAY—*The Reconciliation*—pp. 308-315.

No. LXXII.—"GEORGE ELIOT"—From *The Mill on the Floss*—pp. 356-359.

POETRY.

No. LXVII.—LONGFELLOW—*The Hanging of the Crane*—pp. 336-342.

No. LXXIX.—TENNYSON—*The Lord of Burleigh*—pp. 370-372.

No. LXXXI.—TENNYSON—*The Revenge*—pp. 373-377.

No. CV.—EDMUND H. GOSSE—*The Return of the Swallows*—pp. 437-438.

IN reference to the list of successful candidates at the Non-Professional Examinations for first-class grades A and B, which was published in our issue of October 28th, a correspondent writes to say that the names of those who had previously passed the professional examination had been omitted. By request we publish the names of those who passed the non-professional examination and at the same time had professional standing also :—

GRADE A.

Edward Wesley Bruce.
Gideon E. Broderick.
Albert D. Griffin.
Robert W. Murray.
Angus McIntosh.
Hugh S. MacLean.
Robert Park.
David Robb.
Neil W. Campbell.

GRADE B.

John Connolly.
Robt. K. Row.
Geo. Sharman.
Robt. B. Watson.
Jacob H. Markle.

WE have received from the editor of *Kosmos* (Victoria College, Cobourg) a communication to the effect that we were not quite justified in regarding the article on Confederation in that periodical from which we quoted in our issue of the 4th inst. as expressing the convictions of the V. P. Society. *Kosmos* is only a college organ so far as it is published under the auspices of a society composed of graduates and undergraduates of the University of Victoria College. The writer also adds an interesting item which we quote—"A few weeks ago I noticed in your notice of *William's Manual of Petrography*, the statement that the subject is not practically taught in Toronto University. For several years microscopical Lithology has formed part of the regular Science course in Victoria College, and if Confederation is happily consummated, there will be a chance that it will form part of a similar course in the University of Toronto."

MASSACHUSETTS has for many years possessed a system of public schools for attendance at which no fee is charged. The parents, however, have not till lately been wholly relieved from expense with respect to the education of their children. Until 1873 the pupils were required to provide, at their own cost, text-books and school materials for their own use. In 1873 a law was passed which enabled local authorities to provide text-books and stationery for use in the public schools. The law was permissive, but the results when tried were so satisfactory, that in 1884 the permissive law of 1873 was made compulsory, and since that date parents have not only had no fee to pay, but have had all necessary school-books and appliances found for their children. After eighteen months' experience of the operation of the new law, inquiries have been made as to its effect. From returns received, it is found that since the new law came into force school attendance has increased from five to ten per cent., and in the case of the high schools by as much as twenty per cent. ; the children of poor parents are kept longer at school ; the cost of books has been reduced about one-third, and there has been considerable economy of time.

PENNSYLVANIA is in earnest in reference to the observance of arbour days. Thursday, October 28th, was appointed by State Superintendent Higbee as a day to be observed by all the schools in his State. In his circular he says :—We must put the thought and the work of tree planting into the schools, and keep it steadily before our boys and girls. They must be encouraged not only to plant trees and shrubbery and climbing vines, but also to collect, preserve, and plant seeds, stones, and nuts of various kinds ; to watch their growth, and properly to care for them ; as the elm, maple, locust, ash, tulip-poplar, apple, pear, peach, plum, cherry, chestnut, horse-chestnut, walnut, oak, hickory, butternut, English walnut, etc. This being done, they will soon be enabled to plant, and also to give or sell to others for their planting, from their own modest nursery stock. Then will follow practical inquiry as to building, grafting and growing from cuttings. All this the teacher can aid by encouraging his or her boys and girls in the collection of the best seeds, stones, and nuts within reach, and in the careful planting and culture of the same, keeping some school record of what is done by individual pupils in order to arouse a spirit of generous emulation among them. That teachers may be the better prepared to do this, it would be well for superintendents at their annual examinations to make this one of the leading topics, when questions are asked under the head of "general information." Thus the schools will yearly become more valuable factors in their respective communities and in the Commonwealth at large."

THE Royal Commission appointed to inquire into the working of the Elementary Education Acts, England and Wales, have issued their first report. This forms a bulky volume of about 550 pp., nearly the whole of which is occupied with the evidence of the sixteen witnesses that thus far have appeared before the Commission. In addition there are appendices giving the detailed syllabus of points for inquiry, and several returns supplied by the Education Department bearing upon the various matters under consideration. The Commission has been constituted mainly on the principle of giving every interest supposed to be affected, representation thereon. Thus the Government is represented by the chairman, Viscount Cross, ; the Church of England, by Bishop Temple, Canon Gregory, Canon Smith, Rev. T. D, C. Morse, Earl Beauchamp, Lord Harrowby, and Mr. Talbot ; the Roman Catholic Church, by Cardinal Manning, and Mr. Molloy ; the Wesleyan body, by Dr. Rigg ; the Birmingham League school of thought, by Dr. Dale ; partizans of the School Board system, by Hon. Lyulph Stanley and Mr. Sydney Buxton ; the advocates of scientific instruction, by Sir John Lubbock ; the working classes, by Mr. George Shipton ; and the elementary teachers, by Mr. Heller. Lord Norton is also present to do battle against an enlarged curriculum : Sir Bernhard Samuelson to guard the interests of technical education ; while Sir Francis Sandford gives the Commission the benefit of his unrivalled experience of the working of the Education Department ; and in addition there are Mr. Samuel Rathbone, so well known for his excellent educational work in Liverpool ; Mr. Henry Richard, quite a typical representative of Welsh nonconformity ; and Mr. Alderson, an ex-Inspector of schools.

Literature and Science.

THE SCIENCE OF EATING.*

BY PROF. C. C. JAMES, M.A., ONTARIO AGRICULTURAL COLLEGE, GUELPH.

(Concluded from last issue.)

OUT of the elements found in the earth, air and water, the plant builds up its structure, rearing its stalk and weaving its fibrous coverings from compounds made from the carbonic acid gas of the air and from water, and within it secreting its important stores of vegetable fats and nitrogen compounds. Upon these man is forced to subsist; and from the albuminoids, fats, sugars, starch, and mineral matters of the plant he builds up the muscles, adipose tissue, and bones of the body, and by hidden processes evolves the various all-important secretions. In the formation of these complex compounds from the blood the animal is superior to the vegetable. Plant life can form many life-compounds, but animal life is necessary to produce the higher compounds necessary to brain and nerve.

"So far as we know, it is in the preparation of these complex matters for the blood and the nervous system—neither of which exists in plant life—that animal synthesis exhibits itself. Bone is the infiltration of lime into ordinary cartilage; but hæmoglobin (the colouring matter of the blood) and lecithin are complex bodies, built up in the animal organism. Starch, sugar and fat are built up from carbonic acid and water; albumen from these and free ammonia in the air. All are synthetically built up by vegetable life, and appropriated by animals. Animals evolve energy by the union of these substances with oxygen; they pull to pieces and oxidize the construction of plant life, and in doing so evolve heat and force. But the oxygen-carrying hæmoglobin, the force-liberating lecithin, are essentially the creation of animals themselves, who build them up from less complex substances."—*Fothergill.*

We have noticed the composition and requirements of the body and the source of supply; the next point of discussion is the transference of the one to the other, the change from vegetable to animal, or from food to living matter. In this there are two stages: first, the preparation of the food; and, second, its assimilation, its digestion. We have not space now to take up the chemical preparation of foods and to discuss the science of cookery, but shall leave that for another time; we shall now refer to the digestion of foods and mention a few of the simpler facts discovered, and now accepted by medical men and chemists. In this department the physiological chemist is certainly placed at a great disadvantage, his field of study lying within his own living body, almost beyond his farthest reach.

In referring to the subject of digestion we pre-suppose some acquaintance with physiology on the part of our readers. Digestion means "separation," "splitting asunder," "dissolution." The digestion of food, then, is the splitting up or separation of the food into small particles, and their chemical change into soluble form so that they can pass through the membranes of stomach and intestines into the lacteals and blood-vessels. In a few words, we can define digestion as "the dissolving of the food in the alimentary canal." There are two processes at work side by side: the one, physical, whereby the food is disintegrated as in chewing; the other, chemical, whereby insoluble compounds are changed to soluble, as in the case of the conversion of starch into sugar by the saliva. The chemical changes are due to the action of ferments in the various secretions. We shall trace the process more minutely. First comes *mastication.* The food in being chewed is divided by the teeth into small portions convenient for swallowing, and also in order to expose greater surface to the action of the juices. The movement of the jaws forces out the saliva secretion, principally from the glands beneath the tongue. This saliva contains a ferment termed *ptyalin* which acts upon the starch of food, converting it into sugar, thereby changing an insoluble compound into a soluble. The fats and albuminoids here suffer no change beyond that of disintegration. The chemical change due to *salivation* is quite simple: starch is a compound of carbon and water, and is changed to sugar simply by the addition of more water; it is a process of hydration. The action of the saliva ferment is completely destroyed by the presence of any acid. Tea contains tannic acid; a mouthful of tea, then, will stop the digestion of bread, crackers, potatoes, or anything of a starchy nature. Pickles, vinegar, salads, acid fruits, tea, wines, brandies, everything of an acid nature, should not be allowed to moisten starch food either before entering, or while being masticated in the mouth. The rule of "tea after eating" is based on scientific grounds. The eating of pickles to prevent fatness may be successful in one way, but a disordered digestion may be the result.

By the tongue the food is rolled into a ball or bolus and dropped into the throat. Then comes the process of *deglutition* or swallowing. The throat or gullet is composed of rings of muscles; the expansion of the lower and the contraction of the upper forms a little cavity into which the bolus drops; this cavity moves downwards and the food must follow. This action, the peristaltic motion, is involuntary, and generally works all right; but sometimes the presence of an intrusive or dangerous member of the digesting corps causes a hasty retreat, the muscular action commences at the wrong end, and the poor unfortunate, *willy-nilly*, "un-swallows himself."

The bolus transported to the stomach is introduced to a new secretion, the gastric juice, whose chemical influence is due to the presence of muriatic acid and a compound termed pepsin. The acid arrests the saliva digestion, and, aided by the pepsin, transforms the albuminoid or nitrogenous substances into soluble compounds called peptomes. The "churning" of the stomach further disintegrates the fats and other parts of the food, and the chyme thus formed passes into the intestines through the pyloric ring. First it meets the bile from the liver, whose influence is a little uncertain, but one of the effects seems to be the partial emulsion of the fat. The starch, the albuminoids, and the fats have now all been acted upon, but the completion of digestion remains for the action of the pancreatic juice, the last and most important. It is very complex, containing *diastase*, which completes the starch digestion; *trypsin*, which acts upon the albuminoids; and a third agent which acts upon the fats.

The digestive action is now complete so far as we can trace it. The substances soluble in themselves, such as sugar, do not require the influence of any ferments; the insoluble starch has been changed into soluble sugar by saliva and pancreatic juice; the albuminoids have been digested into soluble peptones by the gastric and pancreatic juices; the fats have been emulsified and chemically changed by the action of bile and pancreatic juice; various mineral compounds have been dissolved in the digestion fluids; the remaining undigested and indigestible portions of the food pass on through the intestines.

So far the changes have been, apparently, quite simple. We would like to trace the further progress of the food, its passage into the lacteals, its chemical changes in the blood; to watch the conversion of peptones into the peculiar disc-shaped corpuscles that float along the canals of the body, carrying their freight of life and reconstructive material to all the ports and shipping stations—a journey interesting but impossible to us as yet.

The albuminoids form the most interesting and important class of nutrients; of them we know but little as to their chemical composition. Efforts have been made to formulate them; the most reliable, perhaps, is that of the eminent chemist, Hoppe Seyler, who gives the following composition to albumen:

$O_{20.9}$	$H_{6.9}$	$N_{15.4}$	$C_{52.7}$	$S_{0.8}$
to 23.5	to 7.3	to 16.5	to 54.5	to 2.0

In digestion the albuminoids are converted into peptones; the chemical change is some-

*Taken from *Kosmos* by kind permission of the editor and writer.

what uncertain, though Foster writes as follows: "Judging from the analogy with the action of saliva on starch, we may fairly suppose that the process is, at the bottom, one of hydration."

We have before slightly touched upon the functions of the different nutrients. The protein is the basis of blood, muscle, connective tissue, etc., and is therefore required for its full development and also to restore all loss by wear and tear. In excess it is changed into fats and carbo-hydrates or burned as fuel. The fats and carbo-hydrates are burned as fuel in the body, the excess being deposited as fat, a reserve supply of food and also a "packing" for the muscles. The excess of fats and carbo-hydrates is quite easily disposed of, without an greaty strain upon or danger to the various organs of the body; but the excess of nitrogen compounds has a long and very intricate course before being disposed of in the body. To this cause can be traced many indispositions and diseases. In endeavouring to get rid of the excess of protein the delicate organs are over-worked, and the "high-feeding" results in gout, rheumatism and many local diseases of the kidneys and other organs. Underfeeding may also result in disease. Upon this proper relation of nitrogenous foods to non-nitrogenous foods depends to a great extent the general health of the body. In determining it there are so many factors that no general rule can be given, but a proper consideration of the principles of digestion will give anyone great help towards its determination.

The great importance of this subject, when considered from a medical standpoint, no one can deny; and a careful consideration of it will show that it is becoming the most important department of medical treatment. To the person who wishes to be his own doctor is here presented a field for study and experiment that is all-important and practical. Not only is the prevention of disease possible, but also in many cases the cure of disease by a right application of the principles of dieting. The dietetic treatment is rational, practical and economical.

CANADIAN ART AND WYATT EATON.

WHILE walking among the Canadian pictures at the Colonial Exhibition, you can fancy yourself in a good European Gallery much more easily than you can if you are in the Fine Art Section of any other Colony. This is considerable praise; for though art is differently conceived of and differently practiced in the various quarters of Europe, yet every old country has been subjected at some time or other to vivifying currents of poetical feeling, which have, as it were thawed the spirit of the nation, and permitted the germs of art latent in primitive customs, costumes and decorations, to develop into artistic life. Half of the contributions to a modern exhibition, though one may consider many of them as poisonous, are at any rate of vital organic growth. They are in some sort artistic, a term which would be misapplied to the mass of Colonial work, totally uninspired as it is by any æsthetic feeling for the materials employed. It may be described as a use of the handicrafts of drawing and colour with the intentions of military, architectural, or engineering draughtsman, but without their patient accuracy and thorough accomplishment. From this reproach the Canadians, however, are tolerably free. Though their best men are hardly better than Mr. J. F. Patterson, who belongs to Australia, it must be confessed that they have more of them than are to be found in any other Colony, and that they show a much larger proportion of work up to a fairly good standard. This is not to be wondered at, since they are nearer the principal centres of education, and have easier access to historic galleries and monuments of past traditions. An Australian has no ways of seeing old masters, and there is no reason why those who have learnt their profession in Europe should make a voyage across the world to impart their knowledge to others. Even if it were so, the mere hearsay information of one or two men will not make up for the actual study of pictures, and the direct influence of the artistic spirit and endeavour of a whole country. The United States, on the other hand is a close neighbour of Canada; and Americans have learned much from France, both directly and indirectly; directly in the studios of great artists in Paris, which are open to all comers; indirectly from the many French pictures which the improvement in taste among the buying classes has brought into the country. Moreover, young Canadian artists have the opportunity, not only of learning European art from Americans, but of crossing the Atlantic and putting themselves under its immediate influence. Of many students of all nationalities of whom I can remember in Paris, a Canadian, Wyatt Eaton, was by no means the least talented and certainly one of the most judicious. Not content to pass through the regular education of the Beaux-Arts, he was more alive than any one else at Barbizon to the advantages of the friendship and advice of J. F. Millett, whom he took care to see every day. Thus the spirit and opinions of one of the most fervent and original minds of the century were passed on by an actual pupil, who had studied the master's subjects under his own eye, and who on his return to his own country was, if I am rightly informed, appointed to a professorship of art.—*Magazine of Art: for November.*

Special Papers.

AGRICULTURAL SCHOOLS IN FRANCE.

THERE is no sentiment or mental condition more binding to progress—to the attainment of more or better skill or knowledge, than the assurance that we are just as wise or proficient as the rest of the world, and even wiser or more skillful than most people. The converse of this proposition should be true, viz., that the example of those who are recognized as having attained to greater proficiency or more knowledge, should be a great incentive to progress. How far from the truth shall we be, in asserting that our farmers cherish such an opinion of themselves, as compared with farmers and farming of other lands, and that this assumption hinders our progress to more perfect attainments in agricultural knowledge and skill.

If this be the state of the agricultural mind of our land a glance at the condition of agriculture in other lands should be of service to us. Glancing across the big pond to France, we find that if the French farmers are in any respect behind us professionally, they cannot charge the government of the country with apathy or neglect in not providing facilities, incentives and rewards for acquiring professional knowledge and skill. The government of France provides three steps in agricultural education, viz., Farm Schools, Provincial Agricultural Colleges and the National Agricultural College. Farm schools existed in France in the early part of this century; but in 1848 the care or patronage of them was undertaken by the government as part of a scheme involving the establishment of a farm school in and for each of the eighty-six departments. The *Act providing for their foundation declares* the object of these schools to be, to furnish good examples of tillage, and to educate agriculturists to be capable of intelligent cultivation, either upon their own property or on that of others. The equipment of these farms and the scheme of instruction are admirably adapted to fulfil these practical objects, so difficult of attainment in agricultural education. The farm buildings and the farming are such as the students should and might, within the means probably at their disposal, have or follow on their own farms, and both are adapted to the peculiar circumstances and wants of the several departments. The schools are placed under the supervision of local boards composed of practical farmers, and each has a director, who must be one of the best farmers of the department, a farmer, an overseer of accounts, a nursery gardener, a veterinary surgeon, and an instructor in the specialty of the department, an expert in the

management of the vineyard, in the cultivation of silk, the care of sheep, etc., as the case may be. The directors are required to conduct the farms so as to afford the best means of instruction for the pupils, and at the same time so that the aggregate results of each year's operations shall be equal to that of other farms of the department. Failure in this respect for two consecutive years incurs expulsion, and the board selects another director. The directors are obliged to submit their books, accounts, etc., to the government for inspection of farm schools; to present an annual report to the Minister of Public Instruction, and to publish a ful account of each year's farm operations. The government boards the pupils, who are all expected to work on the farms, and makes each an annual allowance of $14 for clothing. Three hours per day on an average are devoted to instruction, the first in studying a manual, or listening to lectures on practical agriculture; the second hour is occupied with lessons on book-keeping, land-measuring or general arithmetic, and the third to arranging notes taken during the practical instructions of the day received from the various farm managers or instructors.

There are three provincial agricultural colleges in France, one of these, that of Grignon, the most successful of the three, was established in 1827, and is still in successful operation, under six professors of agriculture: one of Zootechny (economy of animals); one of Sylvaculture and Botany; one of Chemistry, Geology and Physics; one of Rural Engineering, Mechanics and Surveying; and one of Political Economy, Rural Economy, Rural Legislation, Book-keeping, Literature, etc.

The National Agricultural College was established in Paris in 1876, and in the following year had seventeen professors and ninety-six students. The course of study comprises the following subjects:—General and Practical Agriculture, Agricultural Technology, Comparative Agriculture, Rural Economy, Zootechnics, Sylvaculture, Horticulture, Arbouriculture, Viniculture, Chemistry in all its applications to Agriculture, Botany, Zoology, Geology, Physics, Meteorology, Mechanics, Rural Construction, Administrative Law and Rural Legislation.

France has also agricultural schools for girls, the chief of which, situated near Rouen, comprises 400 acres of land, has 300 students between the ages of eight and eighteen years, who do all the farm work, and has a staff of twenty-five sisters. The graduates of this school are in great demand on account of their skill as stewards, gardeners, farm managers, dairy-women, laundresses, etc. Each girl receives on leaving the school an outfit and a small sum of money, earned in spare hours; and should any one of them at any time want a home Darnetel, their alma mater, is always open to them.

A dairy school for girls is to be established at the farm school of Trois Croix, under the direction of the Minister of Agriculture. The fee for boarders at this school for a six month's course will be $50. Eight scholarships in this school have been offered by the state. Lately, the French Government has ordered an agricultural course in every primary school in the country. To cap all, an Order of Knighthood, especially for farmers, has been established by the French Government, and is to be conferred on farmers who especially distinguish themselves in their profession. The badge of these knights of Agriculture (*Ordre du Merite Agricole*) is a fine pointed star of green enamel, surmounted by a wreath of olive leaves, and supported by a green ribbon with a pink edge.—*Halifax Critic.*

NON PROFESSIONAL CULTURE.

THERE is a general impression that almost any one can teach school, and the impression is backed by the fact that almost any one that wishes to does do it. With public opinion as it is, and with the present low standard of excellence among teachers, we must fail of social leadership. For this failure there are several reasons. The first, and that which should be last, is that the teacher lacks knowledge. His study has been broad enough, but not deep enough. He has a smattering of everything, but he lacks accuracy in anything. He is not an authority, and above all, nearly every man in the vicinity is his superior in something when there is no excuse for it.

Unlike the English clergy and army officers, who are the younger sons of the nobility and gentry, teachers as a class have not had the best of early training, and are not versed in social customs. They do not observe instinctively those nice rules of conduct that indicate the polished gentleman. The lack of frequent contact with society people, and the almost constant presence of large numbers who are youngers and subordinates, engender carlessness when in the presence of others.

Teaching is regarded as unfitting a person for a successful business career, and to say that one has taught is the worst possible recommendation for almost any other position. Said a business man thoroughly acquainted with every prominent teacher in the state: "I tell you, if a man continues teaching for ten years it is proof that there is something weak about him." I had just finished my tenth year.

It is commonly urged that the peculiarities of teachers are the necessary result of the work, that a long continuance in teaching tends toward intellectual narrowness. We are willing to admit, yea, to deplore, the tendency, but the necessity we deny.

We are subjected to a daily routine, to repetition term after term, and to the necessity of reducing and simplifying to bring subject matter within the comprehension of our pupils. Constant contact with youngers and inferiors, together with a lack of contact with our equals and superiors, tends to develope self-esteem and a desire to air our knowledge. Furthermore they lead to volubility when with our pupils, and to silence when in the presence of practical men. Our attitude as bosses makes us impatient at opposition and rebellious at restraint.

Working with text-books, and teaching facts not discovered or investigated by ourselves, incline us toward accepting the opinions of others, and stating them as our own. This gives rise to, and supports, the charge that teachers think little. We are inclined to over-estimate the importance of book knowledge and to refer everything in life to what the books say, while we under-estimate the importance of practical knowledge. We lack utilitarian ideas and dwell too much with the ideal. The fatigue, and worry, and exhaustion of the schoolroom make us neglect physical exercise, and the consequent lack of vigour causes inactivity. At fifty, a teacher is old and worn out: while at that age men in other occupations are considered so be in their prime.

We know the dangers of text-book work, and should fight against accepting too readily the opinions of others. We should quote less and think more, overcome the tendency to theorize, and seek practical knowledge. Above all, we should take proper care of the health, and avoid worry.

Our influence in our respective communities and the world at large, our professional pride, and our personal interests demand that we should strive to overcome the difficulties under which we labour; or, to speak more plainly, that we should seek to gain greater breadth of culture. The first requirement is that we recognize those difficulties.—*Principal C. D. Larkins.*

AN interesting movement is now on foot in the city of New York for the appointment of women on the Board of Education, and petitions are to be presented to the Mayor, among them one from the women teachers in the public schools. The Mayor, it is understood, favours the idea.

THE recent death of Mr. Jas. G. McCurdy removes from the teaching profession of New Brunswick, an estimable member. For the past thirty years he had been a teacher in the high school at Moncton, where his abilities, intelligence and high character were held in deserved estimation.

Educational Opinion.

OVERCROWDING IN THE PROFESSIONS. ITS SOURCE AND ITS REMEDY.

I.

THE article that appeared in the columns of the EDUCATIONAL WEEKLY of the 21st of October, under the above heading, is timely, and opens up for discussion certain phases of our educational work that so far have received scant attention. The time and talents of our teachers have been perhaps too exclusively devoted to fitting candidates for passing examinations, rather than preparing them for the practical duties of every-day life, to allow much thought to be bestowed upon the solution of this interesting problem. Now, however, we are face to face with it, and a full and free discussion will doubtless enable those in authority to devise some means for limiting the supply, and at the same time increase the intellectual culture of the people. To do this it will not be necessary to curtail in any way the work now being done, but rather to open up new avenues for the constantly increasing mental activity of our young people. From the prominence given this subject in our leading newspapers, political and educational, and frequent references made to it by public speakers, there can be no reasonable doubt, that in most, if not all of the learned professions, and especially in that of teaching, more members are enrolled than are necessary for properly conducting the business pertaining to them. This state of affairs not only seriously affects the members of these professions directly, but indirectly the whole community suffer from it, for wherever there is too much competition the weaker must yield to the stronger. When this is the case, many things debasing in themselves, and positively injurious to the welfare of society, are necessarily resorted-to, in order to overcome the unequal distribution of business caused by the constantly increasing numbers that enter the ranks of these professions. Our system of education has been blamed for this, and there are those who, while unwilling to attach direct blame, feel that if certain changes could be effected, and some needed additions made to our present system, relief might be afforded through this instrumentality, and the evils complained of be greatly lessened.

It is quite evident that when an effect is produced there must be a corresponding cause, and when this cause is discovered, it is not so difficult to devise the means necessary to remedy the evil. If, therefore, we can diagnose the case with sufficient accuracy to determine what causes produce this overcrowding we have made some progress towards solving this somewhat complicated problem. There are two primary causes to which, in our opinion, we may fairly assign the bulk of the evil complained of. These briefly stated are, (1) That there is a desire common to the majority of mankind, to avoid manual labour, and secure what to them seems to be a more genteel or respectable means of earning a livelihood; and (2) That the influence exerted by our educational system aids in perpetuating this view, by directing the mental activities of our young people along the line of these professions. It will thus be seen, that these two causes are very closely connected, and seem to be interdependent, the one upon the other.

In regard to the first it will hardly be necessary to advance any arguments, since it must be quite evident, even to the most cursory observer, that this feeling pervades a very large portion of those who follow some mechanical pursuit, or belong to the labouring class. To any person who has mingled with these classes even to a limited extent, and who enjoys their confidence if only in a moderate degree, it will require no mathematical demonstration to prove that this desire is widespread and deeply seated. And justly so, for their lot has not been cheered by the light and knowledge which education brings in its train. The writer has frequently heard this remark from parents belonging to these classes, "that so far as their children are concerned they should have an easier time of it, and lead a more respectable life than that which had fallen to the lot of their parents." Now the only way, within easy reach of the parents, and by means of which this can be accomplished is to educate them. Their first care, then, is to send their children to some convenient school. When they are enrolled in one of our public or high schools, they are subject to the influences which these exert, and their position in life is determined to a considerable extent by the course of study they pursue. It is only natural to suppose, or rather assume that the children of those already in these professions do not desire to enter what to them, both from education and training, appears to be a lower and consequently a less respectable position in life. Their ambition would lead them to aspire to something higher instead of taking them in an opposite direction. It therefore appears quite evident that there is a deeply-rooted desire in the minds of the great majority of mankind, especially on this continent, to occupy an apparently more respectable position in society than their parents did, and these professions are looked upon as being the desirable point to be attained.

In considering our second statement concerning the trend of our educational system towards these professions we are led to enquire, (1) Is it true? and (2) Can any means be devised that will lessen this tendency, and direct the intellectual energies of our young people into more practical and useful channels?

To the first question we are compelled to answer in the affirmative. It must be apparent to the most ordinary observer that the great part of the work done in our high and public schools leads directly towards a professional career. The idea is rapidly spreading that in these schools the best interests of a large number of our young people are to a greater or less extent sacrificed to conform to this tendency in our educational work, and the time has arrived when we should ask ourselves the question, Whither are we drifting? This tendency will be more clearly seen if we look somewhat carefully at the various examinations candidates are required to pass, and at the direction in which these are leading our young people. The lowest is that for admission into our high schools, and the course of study in our public schools is so arranged that pupils of twelve or fourteen years of age, if reasonably well taught, have but little difficulty in passing this ordeal. Next in order comes the literary examinations for a public school teacher's certificate; then follow the matriculation examinations in law, medicine, divinity, and arts. Now it will be observed that these examinations are literary in their nature, and are based upon the somewhat broad and comprehensive course of study prescribed for our high schools. The combined influence of the course of study and the associations surrounding the student while attending school lead directly to either a professional or a literary career in life. Recent changes have placed the teachers' examinations more directly on the line of a university course than formerly, and now first-class teachers certificates are granted to students who reach a certain standing in the University course. In addition to these purely literary schools, there are normal and model schools for training teachers, and medical, theological, and law schools for students desirous of entering any of these professions. Should any further arguments be necessary to prove the statements already made, we have only to turn to the official records for their confirmation. From the last report issued by the Minister of Education we learn, that there were 12,737 pupils enrolled in the Provincial High Schools. Of these 266 matriculated at one or other of our universities, 927 entered the learned professions and 1,931 obtained teachers' non-professional certificates, making a total of 3,124, or nearly twenty-five per cent. of the total enrolment. Against this we have 730 who are reported as having entered mercantile life, and 570* as devoting themselves to agricultural pursuits. There need be no wonder, then, that the professions are crowded, since they are constantly receiving accessions not only by the natural increase of those already within the ranks, but by recruits from the mechanical and labouring classes, and from the farming community as well.

* That is, less than five per cent. A fact worth noting.—ED.

TORONTO

THURSDAY, NOVEMBER 18, 1886.

THE LEARNED PROFESSIONS.

THE subject of over-education, and the temptations held out to our young men to forsake the farm and the store, have been largely commented upon of late. We are nevertheless tempted to revert once more to the subject, to review it in another aspect. There are at this present time, we understand, between two and three hundred young men in training in the two Toronto Medical Schools; Kingston has another large array of medical students; and, under the ægis of the Western University, the London doctors have started another medical school. The aspirants for the legal profession are scarcely less abundant; and the candidates for admission to the rank of teachers are more numerous than either.

All this is indisputable; but is over-education really at fault for this? How many of those "learned" lawyers or doctors could translate their Latin diploma into decent English, or into any English interpretation at all? The President of University College was quite right in complaining of "the mischievous error of confounding mental and moral culture with professional training." The sound theory of university training, which is still enforced at Oxford and Cambridge, assumes that every man takes his B.A. degree before entering on the study of Theology, Law, or Medicine. This wise rule is, we believe, being more and more enforced in our own Divinity schools; as at Knox, Trinity, and Wycliffe Colleges. But no such requirement is dreamt of among lawyers or doctors. It is quite a rare exception for them to precede their professional course at Osgoode Hall, or the Hospital, or Medical Schools, by any university training; and if this be the case, surely "over-education" becomes a misnomer. We have been assured by more than one experienced medical examiner that they have felt at a loss how to act with students under examination, who have shown some fair knowledge of Anatomy, Therapeutics, or Obstetrics; but whose command of Orthography or English Grammar was of the most uncertain character.

Instead of shutting up our colleges, we want to open them to "the learned professions." It is not over-education, but want of education that they are chargeable with. If the rule were made absolute, either that the candidate for legal or medical education, must have already taken his B.A. degree; or failing that, must pass special test examinations, from which the B.A. is exempt, we should hear less of "over-education," while some higher and better education would be secured; and a good many unlearned intruders into the "learned professions" would find their proper avocations elsewhere.

The same rule is applicable to the professional teacher. The higher the required standard is made, the more honourable and useful the profession will become; and the higher will be the emoluments to its most successful members. Our present standard of education is not too high; but in many cases greatly too low. It was with perfect justice that Dr. Wilson remarked:—"With our well-organized school system, we are, in fact, prone to over-estimate results. Admirable as these are, there is still abundant room for the elevation of the whole standard of popular education. When the rich treasure-house of knowledge has been thrown open to all, the relative difference will still remain between the gifted and highly cultured few and the well-educated commonalty; while among the latter, knowledge will reveal its economic worth in every branch of industry. Nor can it be doubted that in the great social revolution on which the nations are now entering, traceable as it is, in no slight degree, to the industrial resources of our new world's virgin soil—the victory will be won, as in the past, by intellectual supremacy."

If our teachers were all highly educated men, and all our doctors and lawyers really members of learned professions, the general education would rise to a higher level without its being thereby assumed that such ordinary culture was incompatible with the daily duties of life.

For let us not forget that the daily duties, in a free community like ours, include those of school trustees, free library boards, members of civic corporations, of provincial legislatures, and of the Dominion Parliament and Senate. We entrust to our provincial executive the patronage of the universities; and to our local legislatures the determination of the character of our whole educational system, with its public and high schools, collegiate institutes, normal schools, and provincial university. On them also devolves the grave responsibility of our lunatic asylums, blind, deaf, and dumb institutions, and our reformatories and prisons. In all those duties of citizenship education is invaluable; and we can well afford to have it much more thorough, and more widely diffused, before there can be any just charge of over-education. As we have already said, over-education in the proper sense of the term is impossible. But it may well be a matter deserving the thoughtful consideration of those entrusted with our schools and colleges, that it is the education of the people they have in hand; the citizens of the future:—not its mere lawyers, doctors, and schoolmasters.

WOODSTOCK COLLEGE.

AT the annual convention of the Baptist Church of Ontario, held at Paris, Ontario, on the 19th and 20th of October, a motion to petition the Government for university powers for Woodstock College was passed. This action has naturally provoked some comment. At the convention itself much discussion ensued. The chairman of the Home Mission Society urged that in lieu of such a proceeding, entailing, as it would, the expenditure of a large sum of money in the development of the college, the Home Mission Fund should be considered which had not a dollar to pay the salary due to their missionaries. From outside quarters also has criticism been evoked. "Are institutions sometimes scarcely superior in equipment to a high school," asks the *Week*, "to be invested with the power of granting degrees, upon their own examinations, in all the departments of human knowledge?"

The *Canadian Baptist*, of course supports the project. "We have no fears of its success," it says. "The Government of Ontario is a Liberal Government. If it were not the people of Ontario are a free, self-governing people. Both the Government and the great majority of the people believe in liberty and equality. No Government of Ontario would dare, the present one, we are sure, would not wish, to refuse to one body of the people what has been granted to other bodies—to withold from Baptists what is possessed by Methodists and Presbyterians. If such a thing were attempted, as the *Week* kindly suggests, Baptists would know how to stand on their rights as free citizens." To us this seems strange language to be uttered at the moment when mutual con-

gratulations are heard on the subject of university confederation, when rejoicings are indulged in at the fact that the Victoria has at last determined to cast in its lot with University College, and when hopes are entertained that other denominational colleges will follow in its steps.

The *Baptist* attempts to strengthen its position by adding: "It is inconceivable that any government, while sanctioning such an arrangement, or whether sanctioning it or not, should withhold from a body who have always consistently and persistently refused either to ask or to accept state aid, in any shape or form, for their educational institutions, the requisite charter to enable them to spend a quarter or half million of dollars in founding an institution of learning which will, when opened, be free to all, without distinction of class or creed. That would be indeed a brilliant way in which to encourage both education and enterprise."

Let us consider briefly the stand taken by the *Canadian Baptist*:—

We cannot ourselves quite clearly see what the fact that "the people of Ontario are a free, self-governing people," and the fact that "both the Government and the great majority of the people believe in liberty and equality" have to do with the granting of degree conferring powers upon Woodstock College. We shall probably be told to remember that Albert College confers degrees, that Trinity College confers degrees, that Victoria College used to confer degrees, and we shall be asked why Woodstock College should not confer degrees. We shall answer, because there is now a change of opinion as regards the number of institutions which should possess the power of granting degrees. Governments, however much they may believe in liberty and equality, are surely entitled to change their views, to progress, to entertain more enlightened ideas upon the subject of the best education suitable for the country. If at one time it concedes certain advantages to certain denominations, and if at another it thinks all denominations should be treated alike, has it meanwhile surrendered its title to a belief in liberty and equality?

Neither do we clearly see what the fact that Woodstock College has always consistently and persistently refused either to ask or to accept State aid in any shape or form has to do with the granting of degree-conferring powers upon the said college. That Woodstock College has consistently and persistently refused State aid says much for the independence of Woodstock College; but is this any reason why it should now seek a favour at the hands of the Government? An unprejudiced observer might imagine that it would redound more to the glory of Woodstock College if it persisted in its career of independence, spent its quarter or half million dollars in expanding its powers, and relied upon its own merits for popular approval rather than on a Government charter which permitted it to give to its successful students pieces of parchment with the letters B.A. emblazoned thereon.

OUR EXCHANGES.

Wide Awake for November completes the year, and a good year it has been. The present number contains a pleasant bit of antiquarianism in an account of Pocahontas; and an engraving of an old painting representing the Indian princess and her son are also given. The interesting story, "The Crew of the Casabianca," comes to an end. There are many short stories, among which is "A Child of the Sea-Folk," a mermaid tale, by Susan Coolidge. There is a delightful paper entitled "Two Royal Widows," being an account of Eugéne of France, and Christina of Spain. There is also a good deal of poetry, among which is a pretty poem by the late Helen Jackson. *Wide Awake* is offered for the next two months at $2.40 a year, instead of $3.00, the usual price.

The Chautauquan for December contains the third in the series of articles on "Employment for Women." The subject discussed this month is "Clerical Pursuits," by Mary Lowe Dickinson, and the following list of articles: "Rocks for Homes," by Charles Barnard; "Manufactures," by Edward Atkinson; "The Care of the Eyes," by Dr. Titus Munson Coan; "Chrysanthemums," by Mary Treat; "The Arts and Industries of Cincinnati," by Ida M. Tarbell; "Cotton-Growing in the South," by George Alfred Townsend; "How to Remain Young," by Edward Everett Hale; "Rufus Choate," by Dr. Luccock; "Then and Now," by Mrs. Frank Beard; "Chicago's Experience with Anarchy," by Arthur Edwards, D.D., and "Studies of Mountains," by Ernest Ingersoll.

Lippincott's Monthly Magazine for November contains two noteworthy features: a complete story by John Habberton, author of "Helen's Babies," and a large amount of space devoted to journalism and journalistic experiences. W. E. Norris's "A Bachelor's Blunder" reaches its forty-fourth chapter. Lew Vanderpool writes on "Ludwig of Bavaria; a Personal Reminiscence." Mr. Habberton's "Brueton's Bayou" will probably disappoint lovers of "Helen's Babies." Nevertheless a complete novelette by a well known author is not to be found every day in a monthly magazine which one purchases for twenty-five cents. Mr. Norris's "A Bachelor's Blunder" is the strongest thing in the November number of *Lippincott's*. The story comes to a most exciting point. The poems are by T. R. Sullivan, Marion Manville, and F. Nichols. "Our Monthly Gossip," and "Book-Talk" are very readable.

THE November number of *Education* starts off with an article by F. N. Thorpe, Ph. D., of the University of Pennsylvania, entitled "In Justice to our Nation; a Plea for the Study of American Institutions in American Schools." Prof. John K. Lord, of Dartmouth College, presents an article on the "Present System of German Schools." Rev. H. Hewett, England, has an article on the "Romans in England." Prof. H. B. Adams, Ph. D., of Johns Hopkins University, treats of "History in Amherst College." Miss May Mackintosh, of New York, discusses "Manual Training." Miss Elizabeth Porter Gould has a beautiful poem, entitled "Childish Fancies." The "Query Club," by Miss Frances C. Sparhawk, discusses "Woman Suffrage." "The Book Reviews" consider Prof. Collar's new "Latin Book," and Arthur Gilman's "History of the Saracens." The editorial pages are full, and treat of topics of great interest. "Current Literature" and "Current Educational Literature" pay proper respect to the issues both in books and magazines for the month. "Among the Books" reviews with candour and independence books lately published.

REVIEWS AND NOTICES OF BOOKS.

MR. GRANT ALLEN announces a novel entitled "In All Shades."

THERE is announced a new story by Joaquin Miller, "The Gold Miners of the Sierras."

MR. ROBERT LOUIS STEVENSON is engaged upon a life of Wellington for the series of "English Worthies" which Mr. Andrew Lang edits.

"AN Introduction to the Study of Robert Browning's Poetry," by Hiram Corson, M.A., LL.D., professor in Cornell University, is in press.

DR. FRANCIS BACON, of New Haven, has been appointed by the Connecticut State Board of Education to compile the text books authorized by the Legislature for use in the public schools.

MRS. GENERAL W. S. HANCOCK is said to have been engaged this summer in writing a volume of reminiscences of her late husband. It is now about completed, and will be published this winter.

CUPPLES, UPHAM & Co. announce the fiftieth thousand of their reprint of "The Best Hundred Books"—that controversy in regard to the best reading, which has engaged some of the brightest minds in England and America.

THERE will shortly be published by John Lovell & Co., Montreal, a Canadian historical romance, dealing with the early days of Upper Canada during the period of Sir P. Maitland, entitled "An Algonquin Maiden," by G. Mercer Adam, and Miss A. Ethelwyn Wetherald.

MISS ISABEL F. HAPGOOD'S charming book, "Epic Songs of Russia," is being taken up by the London critics and praised with the generosity the work deserves. Commending notices of the book appear almost simultaneously in *The Saturday Review*, *The Athenæum* and *The Academy*.

Practical Art.

EDUCATION OF THE EYE.

II.

WHAT CONSTITUTES THE PICTURESQUE.

If the senses were always a safe guide to follow, and if that which is pleasant were always right, many things at present hard to understand would be much simplified, and the fact that we like to do a thing would be a sufficient reason for our doing it; what constitutes good and bad taste would be then a question without meaning, but as things are at present rules seem to be necessary for our guidance, and we require instruction as to how we shall distinguish between good and bad art or music as well as how we shall feed ourselves properly or clothe ourselves becomingly. It is, however, easy to see that the rules pertaining to those affairs of human life which are called practical, because they are continually practised by all people, and which relate to shelter, food and clothing, are more easily learned, and accepted with less opposition and reluctance than those which deal with the mind of man, its education and modes of action. Nor is the cause of this difference hard to discover. Hunger and nakedness are imperative taskmasters, and a man cast by shipwreck on to a strange shore would not be longer than he could possibly help in learning from the natives which of its fruits were wholesome and which were poisonous. But in the education of the higher faculties of the mind, those in which the rational takes precedence of the sensual, and where the senses are merely subservient as vehicles for transmitting impressions from the outer world, here the idiosyncrasies of the individual mind come into play and opinions from personal preferences or dislikings are apt to be taken for rules. If we listen for a short time to a crowd of uneducated people criticising a picture we shall find the judgment passed upon it to vary according to the mental standpoint from which each spectator views it; it is not by the application of any acknowledged rules or by its approximation to acknowledged standards that it is praised or condemned, but by its approach to, or distance from a mental picture which is present to the imagination of each observer. "I don't pretend to know a great deal about art, but I know what pleases me," is a very, very common observation heard in studios and art galleries; on no higher grounds than these large sums have been paid for valueless works of art, much to the after regret of the purchaser. Ask one of the non-professional judges of the art sections in our provincial exhibitions for what reason he awards a prize to one picture over another, and you will hear much of his opinion on the matter, but little of the application of any rules of art, almost the only rule known to the ordinary holder of the office being that a picture should resemble the thing represented, although why an exact representation of one object, say a newly whitewashed picket fence or a red brick wall, is not so picturesque as a mere sketchy suggestion of a vessel scudding before the wind under a cloudy sky, he can give no shadow of reason.

Let us then attempt to define picturesqueness in such a manner that the cause of this difference may appear, and first we will take the dictionary definition which in Webster reads as follows: "Expressing that peculiar kind of beauty which is agreeable in a picture." This may be called a definition that does not define, for it leaves the subject rather more confused than before, for a great many kinds of beauty may be agreeable, in pictures of various kinds. We may possibly learn more of the meaning by carefully considering some examples of the picturesque and then enquiring in what respects they agree, as well as in what manner they differ, from their opposites. It has been well pointed out by Charles Dickens that the ordinary mechanic in his working clothes pursuing his calling, be he blacksmith, carpenter, bricklayer, or labourer, is a very picturesque character, compared to the same man in his Sunday suit, in which he feels and looks stiff and uncomfortable—the evident reason here being that in the one case he is clothed in a manner best fitted for the use he performs according to his own free choice, and in a manner which of necessity permits the free use of his limbs, in the other he submits to what he considers the hard necessity of fashion; the clothes he wears are not his in the sense of having his character impressed on them by use, but might belong to any other man of the same size, and while in the one suit his every action betrays his calling, in the other his actions are constrained and it is only after long usage, when they are taken into every-day use that his character is impressed on them and they become a possible element of the picturesque. And as with clothes so with houses, fences, bridges, churches, all the works of man become more picturesque as use and age impress their character on them. No artist chooses a spick and span new building to introduce into his landscape, or a new board fence. It is always the old and used, though not necessarily the decayed, but sufficiently worn by use to bring out the character of its material element. If a building is of stone it is more picturesque when the mortar is sufficiently weather-worn to show the forms of the constituent stones in rather strong relief, and still more does it become suitable to take its place in a picture when nature begins to claim it for her own as a place where lichens and mosses may grow, and break the gray masses with their beautiful olive greens and russets marking thereby with greater distinctness the difference between stone and brick or other artificial compounds, and not only in the works of man is character the chief element of picturesqueness, but in nature also. No landscape painter seeks to make a strong picture from young immature trees; these are useful only to be introduced as masses of green in the distance, where grass or bushes might almost do as well, but for the main subject of a picture a tree must be old enough to have developed its true character; it must be an unmistakeable oak, or elm, and the more oaklike the oak—thick stemmed, gnarled, with widely spreading, sudden crooked branches, and dense layers of umbrageous foliage, the more picturesque it is. Character, then, is the soul of the picturesque, and character is the embodiment of use, as the experienced eye of the axeman tells by the character expressed in the growth and bark of a pine whether it will make shingles or lumber, or is only fit to be burned. The appreciation of character, therefore, and the power of reproducing it in an image is what makes the poet, the painter, the actor or the sculptor a true artist. Shakespeare is great because his kings think and speak as typical kings should, because his ladies are ladies, and his fools fools. Landseer is great because his lions are leonine, and his dogs canine, and it is moreover the character impressed on a people's art that is their distinguishing characteristic by which they are known from all other peoples, and which changes as they change, advances as they advance, and decays as they decay.

T. MOWER MARTIN.

SOME experiments by Mr. E. L. Nichols have shown that magnetism may considerably influence chemical action, the effects of acids on iron fillings in the field of a powerful magnet differing in several respects from those under ordinary conditions.

IT has been sanguinely predicted that within five years the magnesium light will be as familiar a sight in many places as the electric light is to-day. Only the high cost of magnesium has hitherto kept it from extensive use, and its price, which was $40 a pound a few years ago, is said to have been reduced to $8 a pound by a new German process, with the prospect of still further cheapening. A wire of moderate size equals the light of seventy-five stearine candles, making the cost at present but little more than that of gas, while no expensive works or street mains are required for its use. The magnesium is simply burned in lamps provided with clock-work movement to feed the ribbon of metal regularly. There is no danger, as with electricity.

Mathematics.

ANSWERS TO THE PROBLEMS IN ARITHMETIC FOR CANDIDATES PREPARING FOR THE ENTRANCE EXAMINATIONS.

(See issue of Oct. 21, No. 92, page 634.)

9. $1.50.
10. $132.50, $196.5c.
11. $\frac{3}{19}$.
12. $11\frac{5}{8}$.
13. 8.27\frac{1}{2}$.
14. $57\frac{1}{2}$.
15. $27\frac{3}{5}$.
16. 50 per cent.
17. 336.
18. 222.39\frac{1}{2}$.
19. .24.
20. $95\frac{5}{8}$.
21. $16\frac{2}{3}$ shillings.

(See issue of Oct. 28, No. 93, page 652.)

22. $5\frac{1}{3}$.
23. 576.
24. £600.
25. $7\frac{2}{3}$.
26. 48 guineas.
27. 3 inches.
28. £8,400.
29. £2,400; £1,200: £200.
30. 36 minutes.
31. 1 day 4 hours after C joined A and B.
32. .009984; 9.005̇8̇.
33. £12 10s. 1½d.
34. £540.
35. £8 2s.
36. .555555̇.
37. £86 8s.
38. $4\frac{4}{9}$ hours.
39. 3 days.
40. 5480 yards.
41. 10 ft.

PROBLEMS IN ARITHMETIC

SUITABLE FOR CANDIDATES PREPARING FOR THE ENTRANCE EXAMINATIONS.

86. If 120 men build a house 60 ft. high in 15 days, how many men will build a house 55 feet in 10 days?

87. A garrison of 1000 men have provisions for 30 days. At the end of 10 days a reinforcement arrives, and the provisions last only 5 days. What is the number of the reinforcement?

88. A sum of money was borrowed at 5 per cent. simple interest. In seven years it amounted to $810. What was the sum borrowed?

89. If 100 men in 6 days of 10 hours can dig a trench 200 yards long, 3 yards wide, and 2 yards deep, in how many days of 8 hours can 180 men dig a trench 360 yards long, 4 yards wide, and 3 yards deep?

90. By selling 12 pounds of tea for $7.56, I gain 5 per cent. What do I gain or lose per cent. by selling 50 pounds of the same tea for $31?

91. If 20 men build a wall 800 feet long, 10 feet high, and 18 inches thick in 14 days of 8 hours, how thick a wall will 15 men build 900 ft. long and 15 feet high in 21 days of 9 hours?

92. If 2 horses can plough 7 acres of ground in a day, how many horses will plough 161 acres in 11½ days?

93. If 14 men can mow 168 acres in 12 days of 8¼ hours, how many acres can be mowed by 20 men in 11 days of 7½ hours?

94. Simplify:

$$\frac{(0.075\times0.075)-(0.005\times0.005)}{0.75-0.05}$$

95. Simplify:

$$\frac{3\frac{1}{3}+4\frac{1}{4}+5\frac{1}{2}}{1\frac{2}{3}+2\frac{1}{4}+2\frac{2}{3}}\times\frac{3\frac{1}{2}+4\frac{1}{16}+4\frac{1}{2}}{7\frac{1}{4}+8\frac{1}{2}+9\frac{1}{2}}.$$

96. Simplify:

$$\frac{9\frac{2}{5}-8\frac{6}{7}+6\frac{2}{5}-1\frac{1}{3}}{8\frac{7}{16}-7\frac{13}{24}+6\frac{5}{8}-5\frac{7}{12}}.$$

97. Find the cost of papering the walls of a room 10 feet 8 inches wide, 19 feet 4 inches long, and 9½ feet high, with paper 2 feet wide at 5 cents a yard, allowing 10 yards of the paper for waste.

98. Simplify:

$$\frac{5\frac{1}{2}-0.042-2.4+7\frac{1}{2}}{16\frac{2}{3}\div60\frac{1}{2}}.$$

99. Find the circulating decimal equivalent to $\frac{15}{101}$.

100. If oranges are bought at the rate of 20 for 25 cents, how many should be sold for $12 to gain 40 per cent. on the cost?

101. Divide 24.109932 by 301.28.

102. A bought 63 sheep, and sold $\frac{2}{3}$ of them at a profit of 15 per cent., $\frac{1}{3}$ at a profit of 50 per cent., and the rest at a loss of 25 per cent. What did he pay for the sheep, if his gain was $19.25 on the whole?

103. If $\frac{1}{2}$ of a sheep is worth $5\frac{1}{3}$, and $\frac{3}{4}$ of a sheep is worth $\frac{1}{12}$ of an ox, what is the value of 100 oxen.

104. How many bricks, each 9 inches by 4½ inches by 3 inches, are there in a pile 36 feet long, 9 feet wide, and 12 feet high?

105. After paying $\frac{1}{3}$ of my money to one person, $\frac{1}{4}$ to another, and $\frac{1}{12}$ to a third, I had 7 cents remaining. How much had I at first?

106. A person walks at the rate of 3½ miles an hour. Three hours after he has set out on a journey, he is followed by another person, walking at the rate of 5 miles an hour. In what time will he be overtaken?

107. A grocer mixes 72 pounds of tea at 69 cents a pound, with 90 pounds of tea at 60 cents a pound. At what price per pound must he sell the mixture so as to gain 10 cents a pound?

108. Find the interest of $1,721.84 from April 1st to November 12th, at 4½ per cent.

109. If two men can reap 2½ acres in 2¼ days, how long will it take 11 men to reap 15 acres?

110. An army lost 18 per cent. of its strength by sickness and desertion, and then lost 14 per cent. of the remainder in battle. The number left was 84,624. Of how many did the army originally consist?

111. If 6 iron bars 4 feet long, 3 inches broad, and 2 inches thick weigh 288 pounds, how much will 15 bars weigh, each 6½ feet long, 4 inches broad, and 3 inches thick?

112. A rectangular cistern 9 feet long, 5 feet 4 inches wide, 2 feet 3 inches deep is filled with a liquid that weighs 2,520 pounds. How deep must a cistern be that will hold 3,850 pounds of the same liquid, if its length is 8 feet, and its width 5 feet 6 inches?

113. In what time will $2,275 amount to $2,673.12½ at 5 per cent?

114. If 12 men can build a wall 6 feet high, 3 feet thick, in 9 days, how many men would build a wall of the same length, 5 feet high, 4 feet thick, in 24 days?

115. If 5 per cent. be lost by selling an article at $2.50, find the gain or loss per cent. by selling it at $3.12½.

116. Reduce 167,948,604 square inches to acres, etc.

117. A man contracts to perform a piece of work in 30 days, upon which he employs 15 men. In 24 days it is half finished. How many additional men must he employ to finish the work in time?

118. Reduce to its lowest terms the product of $1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\frac{1}{6}$, and $\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}$.

HURON.

(To be continued.)

ALGEBRA.

USEFUL PROBLEMS.

1. Give rule for squaring a polynomial.

2. Give rule for cubing the sum of two quantities. Two answers.

3. Write the five forms for the cube of $(x+y+z)$.

4. Show, no multiplication allowed, that $2\frac{1}{4}(a+b+c)(b+c)+(a+b+c)a+\frac{1}{4}(b+c)a+\frac{1}{4}(a+b+c)-(a+b+c)(c+b)a=(a+2b+2c)(2a+b+c)(a+b+c)$.

5. What quantity added to $x^4-210x^3+625x^2-830x+100$ will make it zero, when $x=207$.

6. Find the condition that $x^4+px^3-25x^2-25px^2+5ax-25b$ may be divisible by $x-5$.

7. The expression x^3+px^2+qx+r vanishes when $x=1$, 5 or -5. Find the values of p, q, r, and of the expression when $x=10$.

8. Show algebraically that of all the rectangles the sum of whose four sides is two miles, the greatest in area is a square.

9. Show that $(b^{\frac{1}{2}}+c^{\frac{1}{2}}-a^{\frac{1}{2}})a^{\frac{1}{2}}+(c^{\frac{1}{2}}+a^{\frac{1}{2}}-b^{\frac{1}{2}})b^{\frac{1}{2}}\div(a^{\frac{1}{2}}+b^{\frac{1}{2}}-c^{\frac{1}{2}})c^{\frac{1}{2}}+2(a+b+c)=(a^{\frac{1}{2}}+b^{\frac{1}{2}}+c^{\frac{1}{2}})^2$.

10. If $s=a+b+c+d$ to n terms, shew that $\frac{s-a}{s}+\frac{s-b}{s}+$ to n terms $=n-1$.

11. Find the value of $x^3+3y^3-27z^3+18xyz$ when $x+2y=3z$.

Simplify:

(a) $$\frac{x^4-3x^3+3x-1}{3x^4+5x^3-9x^2-5x+3}$$

(b) $$\frac{(a+b+c)(ab+bc+ca)-abc}{(b+c)(a^2+b^2+c^2+ab+bc)}$$

Methods and Illustrations

THIRD CLASS LITERATURE.

EXAMINATION QUESTIONS SUITABLE FOR CANDIDATES.

III. UNTHOUGHTFULNESS.

High School Reader, page 227.

1. "A LECTURE delivered in Rugby chapel." Give some account of Rugby school, and of Dr. Arnold's work in connection with it.

2. "Spiritual folly." Describe the lecturer's idea of spiritual folly.

3. ". . . those who are in the common sense of the term, foolish." In what sense is this? How may one be foolish *not* in the common sense of the term?

4. A ". . . in the common sense of the terms, prudent, sensible, thoughtful, and wise." How may one be prudent, sensible, thoughtful, and wise and yet be foolish?

5. "Some of the ablest men who have ever lived, have been in no less a degree spiritually fools." Give some account of anyone who you think comes under this description, and give reasons for your so considering him.

(*a*) Parse "spiritually" here.

6. "Those who are, as it were, fools in worldly matters, are wise before God." How does the lecturer regard this statement? Do you agree with him? Give reasons for your answers.

7. "That strange confusion between innocence and ignorance." What is the "confusion" referred to here. On what grounds can the ignorant be held blameworthy?

8. "If you take away a man's knowledge you bring him to the state of a brute, and one of the most mischievous and malignant of the brute creation." Do you agree to this? Why so? Expand your opinion into an argument.

(*a*) Distinguish between *mischievousness* and *malignity*.

9. "He then, who is a fool as far as regards earthly things is much more a fool with regard to heavenly things." Do you agree to this? Give reasons.

10. ". . . which makes me grieve so over a want of interest in your own improvement in human learning." What causes this grief? and why does it cause it? Expand the argument of the lecturer that those who take little interest in important intellectual or material things, will take less interest in spiritual things.

11. "It is better to love earthly excellence than earthly folly—it is by many degrees nearer to the kingdom of God." Of what moral worth is it to prefer earthly excellence to earthly folly?

12. "A spirit of manly Christian thoughtfulness." How will such a spirit manifest itself? How may the absence of this spirit affect even those who are clever and anxious to get on well in their regular tasks and duties?

13. In what ways, does the lecturer say, is unthoughtfulness induced and increased?

14. Detail the arguments by which the lecturer shows that reading works of amusement conduces to unthoughtfulness. In what way, does the lecturer say, is the reading of light literature not injurious?

15. Why is the fault of a too frequent indulgence in light reading hard to deal with, both by the parent or governor, and by the teacher?

16. "The remedy for it rests with each of you individually." Is it not in this way that all faults must be amended? Of what value then are preventive measures in the government of the school or family?

17. "Unnatural and constant excitement of the mind is most injurious." Why so; detail the reasons.

18. Sum up the conclusions of the lecturer with reference to the reading of works of amusement.

19. As evidenced by this lecture, what should you say of Dr. Arnold's style as a writer. What, also, of his character, as a man and teacher?

20. Do you notice any resemblance between Dr. Arnold's style and that of his famous son? If so, point it out as clearly as you can. A. M.

TESTS IN ENGLISH.

I.

1. ANALYSE these lines, and parse the words in italics:—

A *time there was, ere England's* griefs began,
When *every* rood of *land* maintained its man.
GOLDSMITH.

2. What do you understand by the following terms, as applied to nouns: Abstract, diminutive, compound?

3. Give, with meanings, the prefixes which occur in object, abdicate, compare, promote, describe, irregular.

II.

1. Analyse the following lines, and parse the words in italics:—

I know not *if* I *could have* borne
To see *thy* beauties *fade*.—BYRON.

2. What is a complex sentence? Form three complex sentences as examples.

3. Tell the meaning of the prefixes ante, circum, intro, bene, extra, and give words containing them.

III.

1. Analyse these lines, and parse the words in italics:—

Full many a *spell* to him *was known*
Which wandering spirits *shrink* to hear.
SCOTT.

2. Give examples of nouns whose plurals are formed (1) by the addition of *es* to the singular; (2) by a change of vowel sound; (3) without alteration.

3. What prefixes mean between, after, together, back, in the way of, near? Give words in which they are used with these meanings.

IV.

1. Analyse the following lines, and parse the words in italics:—

There Honour comes, a *pilgrim gray*
To bless the turf *that* wraps *their* clay.
COLLINS.

2. What is a subordinate clause? Name the different kinds of subordinate clauses, and give an example of each kind.

3. The stem *tract* means *to draw*. Show how this meaning is modified by the addition of the prefixes abs, ad, de, ex, dis, pro, con.

V.

1. Analyse these lines, and parse the words in italics:—

Often, glad no more
We wear a *face* of joy, *because*
We *have been* glad *of yore*.
WORDSWORTH.

2. What is meant by the possessive case? Make the following nouns and pronouns possessive: Church, mice, one, we, ladies, men, goodness, which.

3 Pick out the prefixes from the following words, and give their meanings: Occur, allow, disperse, suppress, posterity, prejudice.

VI.

1. Analyse the following lines, and parse the words in italics:—

'*Twere long* to tell *what* steeds gave *o'er*
As *swift* the *hunt through* Camlusmore.
SCOTT.

2. What are interrogative pronouns? Make a list of them, and form sentences to illustrate their use.

3. Give the Latin prefixes which mean *across, under, against*, and show by examples how they are sometimes changed in composition.

VII.

1. Analyse the following lines, and parse the words in italics:—

How *blest is* he, who *crowns*, in shades *like these*,
A *youth* of labour with *an* age of *ease*.
GOLDSMITH.

2. Form two sentences in which adjectives are used as nouns, also two in which nouns are used as adjectives.

3. Put down words containing the following forms: Suf, sed, ir, traf, op. Give the true form and meaning of each of these prefixes, and say why it is so changed.

VIII.

1. Analyse these lines, and parse the words in italics:—

There is no fireside, however defended,
But has one *vacant* chair.—LONGFELLOW.

2. What is a cognate object? Give a few examples.

3. Give the meaning of inspect, expect, circumspect, retrospect, prospect, compounds of the Latin verb *specio* (*spectum*) to *look*.

IX.

1. Analyse these lines, and parse the words in italics:—

'Tis now *become* a *history little known*
That once we *called* the pastoral house *our own*.
COWPER.

2. The word *running* may be either a noun, an adjective, or a present participle. Show this by examples.

3. What prefixes occur in—co-eternal, binocular, diffuse, elect, survey, benefactor? Give the meaning of the prefix in each case.

X.

1. Analyse the following lines, and parse words in italics:—

Then I, and *you*, and *all* of us *fell down*,
Whilst bloody treason *flourished* over *us*.
SHAKESPEARE.

2. What is an adjective clause? Form a sentence containing one; and say by what words adjective clauses are usually introduced.

3. Put down all the Latin prefixes beginning with P, and give examples of their use in the composition of words.

XI.

1. Analyse these lines, and parse the words in italics:—

The *wiser* mind
Mourns less for what age takes *away*
Than what *it* leaves *behind*.
WORDSWORTH.

2. Form two sentences, the first containing a noun in apposition in the nominative case, the second a noun in apposition in the objective case.

3. What Latin prefixes mean—not, around, apart, instead of, asunder, backward? Put down words in which they occur with these meanings.

XII.

1. Analyse the following lines, and parse the words in italics:—

He *attendeth* here *hard by*,
To know *your* answer, *whether you'll admit* him.
SHAKESPEARE.

2. Name the different kinds of adverb clauses, and give an example of each kind.

3 Tell the meaning of—elapse, collapse, relapse—compounds of *Labor* (*lapsus*), to *slip*.

XIII.

1. Analyse these lines, and parse the words in italics:—

From one *lonely* roof, *whose curling* smoke
O'ermounts the mist, *is heard* at *intervals*
The voice of psalms.—GRAHAM.

2. Explain the terms *weak* and *strong* as applied to verbs, and classify the following verbs as weak or strong—spin, bless, wear, forget, choose, unite, dream, rob.

3. Give, with meanings, the prefixes which occur in—perfect, offend, malefactor, assent, viceroy, intermarry.

XIV.

1. Analyse and parse:—

On, ye brave,
Who rush to glory, or the grave.—CAMPBELL.

2. What is a contracted sentence? Construct three such sentences.

3. Give the meaning of the prefixes—*pro*, *super*, and *con*, and show by examples how they are sometimes altered in the composition of words.

XV.

1. Analyse these lines, and parse the words in italics:—

Lightnings *showed* the distant hill,
Where *those*, who *lost* that dreadful *day*,
Stood few and *faint*, *but* fearless *still*.—MOORE.

2. What is meant by the passive voice of a verb? Form two sentences containing verbs in the passive voice, and then give the *active* form of each sentence.

3. Give the Latin prefixes which mean—among, forward, from, on this side of, half, with words in which they are used with these meanings.—*Teachers' Aid*.

(To be continued.)

ENGLISH LITERATURE.

AN EXAMINATION PAPER ON "THE MERCHANT OF VENICE," SUITABLE FOR CANDIDATES FOR FIRST CLASS CERTIFICATES.

1. FROM what sources did Shakespeare derive the plot of *The Merchant of Venice*.

2. Point out the art displayed in the opening scene.

3. Discuss the appropriateness of the name of the play.

4. Contrast the character of Shylock with that of the Jew of Malta.

5. It has been thought by some critics that the casket scenes in the play are irrelevant. Give your opinion as to their appropriateness.

6. What do you consider the moral of the play and how is it brought out and enforced?

7. Contrast the character of Portia with those of Beatrice and Rosalind.

8. *The Merchant of Venice* is classed among Shakespeare's comedies, do you consider that it is properly so classed?

9. Contrast the humour of Launcelot Gobbo with that of the Fool in King Lear, and write a short note on Shakespeare's fools.

10. Do you consider the last act of the play an anti-climax? Discuss fully its effect.

11. At what period of Shakespeare's life was this play written? Give full reasons for your opinion.

12. Describe the performance of a play in Shakespeare's time.

Educational Intelligence.

[*The reports of Teachers' Associations meetings have delayed many items of news that ought to have appeared before this date.*—ED.]

THE foundation of the new high school at Campbellford is completed.

JAS. A. MILLER has been engaged as assistant teacher at Whitby.

THE new Chatham High School will be formally opened on January 7th, 1887.

MISS HAY has been made principal teacher of the new school in Ward 5, London, Ont.

J. F. KENNEDY has resigned his position as head master of the Dundas Public Schools.

MRS. J. DIXON is re-engaged in S. S. No. 5, McGillivray, at a salary of $400 per annum.

MR. SHERER has been engaged to teach the Orange Hill School next year at a salary of $440.

MR. G. NEWMAN has taken charge of S. S. No. 7, Gore Hill, Mr. Campbell having resigned.

THE trustees of Slabtown School, near Morpeth, have re-engaged Mr. Armstrong for the ensuing year.

MR. LEIGH has been re-engaged to teach the Kirkton Public School for 1887, at a salary of $500.

MR. JOS. MORGAN is to teach the Brinsley School for 1887 in the place of Mr. Hobbs resigned.

MISS NATTRASS, teacher in Ward 5, London, Ont., has had her salary increased to $300 per annum.

BROOKE Council has passed a bye-law authorizing the trustees of S. S. No. 5 to borrow $850 by debenture.

MR. C. S. FALCONER, formerly of Fish Creek, has just been appointed head master of the Forest Public Schools.

THE trustees of the Gore School, London township, have engaged Miss Langford as their head teacher for next year.

J. D. MCKAY, hitherto a student at the Elora High School, has been appointed principal of the Markham Public Schools.

MR. ANDERSON, Trenton, has been engaged to fill the place of Mr. Jennings, who is now head master of the public school.

MR. D. D. YULE has been re-engaged by the Lucknow School Board at a salary of $650—$50 of an advance over last year.

THE trustees of S. S. No. 4, McKillop, have engaged the services of Mr. D. McGregor, now of Hay, for 1887, at a salary of $450.

MR. J. J. TWOHEY, M.A., classical master of the Chatham High School, has left for Brockville to take a similar position at $1,000.

THE Minister of Education was the guest of Mr. Embree, head master of the Collegiate Institute, while in Whitby attending the graduation exercises.

MR. E. HIGLEY, student at Huron College, London, formerly teacher at West Lorne, is assisting Rev. S. L. Smith in St. Thomas and Port Stanley.

MR. WM. CHISHOLM, teacher of S. S. No. 8, East Nissouri, is giving up his school at the end of the present year. This will be a chance for a good teacher.

AFTER the departure of Mr. A. T. DeLury from Manilla (County Victoria) for the Toronto University, Mr. Loftus has taken his place in the public school.

AT the request of the East Kent teachers, Mr. Dearness, of London, attended their convention in Ridgetown, and addressed a public meeting in the Presbyterian Church on educational subjects.

MR. KEITH has been engaged as principal for 1887 at Paisley at a salary of $550, and Miss Baird as firstassistant at $300. Miss Whyte was offered re-engagement as second assistantship at $300.

ON the 1st October Mr. A. T. DeLury, for the last six years head master in the Manilla (County Victoria) Public School, was made the recipient of an address and a gift of a valuable collection of books.

ON motion of Mr. Smith, seconded by Mr. Ormiston, a world's atlas was ordered to be furnished the Whitby Collegiate Institute at a cost of $24, and the same charged to the library fund of the institute.

THE trustees of Markham Village Public School have engaged Mr. Jas. H. Mackay, of Scarboro', as head teacher for the balance of the year at $125, and released Mr. Galbraith, as requested by him, from his engagement.

THE teachers' convention for the County of Lambton was held at Alvinston, Monday, October 25th. Principal Austin, of Alma College, St. Thomas, delivered a very interesting address, as did also Mr. Superintendent Barnes.

AT a meeting of the Grimsby School Board, held on the 22nd October, it was moved by H. H. Anderson, seconded by N. J. Teeter, that Mr. David Sykes be re-engaged for the year 1887 at a salary of $600. Carried unanimously.

MR. ANGUS MARTYN, who has been principal of Bath Public School for four years, has been appointed assistant teacher in Newburgh High School for the ensuing year. Mr. Martyn filled the same position during the years 1881-2.

MR. E. HIGLEY, teacher of West Lorne, has resigned and is on his way to attend Huron College, London. Mr. J. McKillop, B.A., takes charge of West Lorne Public School for the remainder of the year.—*St. Thomas Daily Times.*

MISS ANDERSON, of Beechwood, who has been teaching the school in that section for the last two months in the absence of John Anderson, who is attending the Normal School at Toronto, has been engaged by the trustees of that section for the ensuing year at a salary of $400 per annum.

MISS POLLOCK, the senior assistant teacher in Campbellford Public Schools, continues so ill that she will be unable to resume her duties for some time. Miss Gilmurray, a former student of the high school, and a successful teacher, has been been engaged to take charge of Miss Pollock's class.

THE first of a series of township institutes was held at Bobcaygeon on Friday, October 15th. In spite of the unfavourable weather, twelve teachers were present, beside elder pupils and others. Mr. J. H. Knight, P. S. Inspector, presided, and Mr. M. Irwin, teacher of S. S. No. 9, Verulam, acted as secretary.

MR. ARCHER, first assistant of the Smith's Falls High School, takes his departure by permission of the Board, for the purpose of attending the Toronto School of Medicine, and the vacancy has been filled by the engaging of Mr. James Mitchell, B.A., now of Brooklyn, N.Y., but formerly a teacher in the Brockville High School.

THE ratepayers of S. S. No. 12, Plympton, met in their school house, Friday evening, Oct. 8th, to discuss the advisability of retaining their present teacher, Mr. Anthony. Several of the ratepayers spoke in eulogistic terms of Mr. Anthony as a teacher. A vote of the meeting was taken, which was unanimous in favour of retaining him.

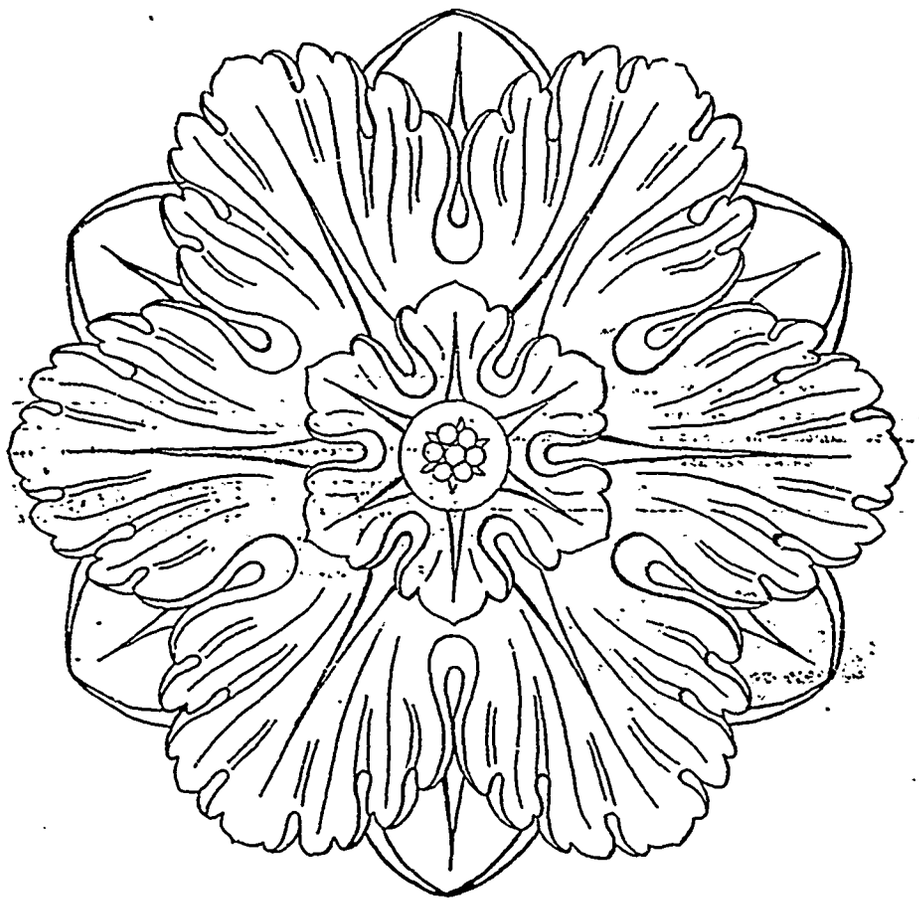
AT a recent meeting of the Collingwood School Board the following engagements were made:—Mr. Ed. Ward, $800; Miss Birnie, $375; Mr. T. Chislitt, $500; Miss S. Duffy, $250; Miss S. McKean, $250; Miss L. M. Palin, $275; Miss H. Burdett, $325; Miss E. Brack, $275; Miss F. Clark, $325; Miss L. Reynolds, $250; Miss M. M. Hamilton, $300.

ON Friday, October 15th, Mr. J. J. Tilley, Provincial Model School Inspector, inspected the Parkdale County Model School. There were thirty-five teachers in training in attendance, to whom he gave many valuable hints on teaching, reading, English grammar, and decimal fractions. He congratulated the students on the intelligent way in which they did their work, and the authorities generally on the excellence of the school, also the pleasantness and brightness of its class rooms and general surroundings. On account of the overcrowded junior division, the board has been compelled to adopt the half time system until Jan., 1887, at least. There are 120 in attendance in this division, sixty of whom attend from nine to twelve, and sixty from half-past one to four p.m. daily.

THE second of a series of township institutes was held at Omemee on Friday, October 22nd. All the teachers were present except those of sections Nos. 3, 4, 6, 12 and 15, Emily. At the morning and afternoon sessions Mr. J. H. Knight, P. S. Inspector, presided, and Mr. J. J. Morgan acted as secretary. The subjects discussed were reading, geography, writing, grammar, monthly reports and arbor day. In the evening an entertainment was held in the Town Hall. Mr. Thos. Stephenson, chairman of the Board of Education, presided. Addresses were delivered by Rev. Dr. Smithett and Rev. C. W. Watch, and a selection of instrumental and vocal music was rendered by the ladies and gentleman of the village. The proceedings throughout were of an interesting and instructive character.

AT a meeting of the Carleton Board of Education held on the 21st October, the following business was transacted: — Moved by Mr. A. Nicols, seconded by Mr. P. Cram, that Miss Katie Cram be engaged as teacher for 1887 at a salary of $200 per year.—Carried. Moved by Rev. D. McDonald, seconded by Mr. Nicol, that Miss Suter be engaged for the ensuing year at a salary of $225.—Carried. Moved by Mr. Taylor, seconded by Mr. Dougherty, that Miss McFarlane be engaged to fill Mr. McDonald's class at a salary of $275—Carried. Moved by Rev. D. McDonald, seconded by Mr. Nichol, that Miss Nellie L. Garland be engaged as one of the assistant teachers for the ensuing year at a salary of $200.—Carried. Moved by Mr. Cram, seconded by Mr. Graham, that Mr. Shepphard be engaged as assistant in the high school for the ensuing year at a salary of $800.—Carried. Moved by Mr. Taylor, seconded by Mr. Dougherty, that this Board supplement the fund to the amount of thirty dollars to give prizes to the public school.—Carried.

AT a meeting of the Wingham School Board on 12th October the chairman presented a scale of salaries for the consideration of the board:—That the salaries of all teachers, other than the principal, of the Wingham Public Schools should be paid according to the following scale: If holding a third-class certificate, $225; if holding a second B., $275; if holding a higher certificate, $290, with an increase of $15 for each then consecutive year of teaching in our schools; provided, however, that when the salary shall, according to such graduated scale, exceed $420, any further advance shall be a matter of special arrangement with the board; and provided that the salaries of the present assistant teachers shall be taken as the salary upon which the annual advance of $15 shall be made, computing the service from this year. On motion of Mr. Cummings the plan was adopted. Applications for re-engagement as teachers were read from W. E. Groves, Miss Case and Misses L. and M. Cately, and a letter was read from Miss B. Reynolds resigning her position as teacher of the fifth department. The following applications were received for the vacancies occurring in the school:—Misses Minnie Snell, Annie A. Agnew and Jennie Cargill. On a motion of Mr. Youhill, Miss Carghill was engaged to fill the vacancy, subject to the resolution passed. Mr. Inglis moved that Miss Snell be engaged as teacher for the ensuing year, and Dr. Towler nominated Miss Agnew. A vote resulted in favour of Miss Agnew.



PROFESSIONAL EXAMINATIONS.

TRAINING INSTITUTES,

Hamilton, Kingston, Guelph, Strathroy.

I.—WRITTEN EXAMINATION.

Monday, December 6th.—The Science of Education, School Management, Methods in Mathematics and Science.

Tuesday, December 7th.—Methods in English, The History of Education, Methods in Classics and Moderns, School Law and Hygiene.

II.—PRACTICAL EXAMINATION.

The examination in Practical Teaching will be held on **Wednesday, December 8th,** and the succeeding days. Each candidate will be expected to have one lesson prepared in each department covered by his Non-Professional Certificate. The examination of each candidate will last at least one hour and a half. For further details see regulations Nos. 241, 242, 246 and 247.

Second Class—At the Normal Schools, Toronto and Ottawa.

Thursday, December 9th.—Arithmetic, Principles of Education, Hygiene, Practical English.

Friday, December 10th.—Language Lessons, Grammar, etc., History of Education, School Organization and School Management, Science of Education.

Saturday, December 11th.—English Literature, Algebra, Physics, Chemistry, Botany.

Drill Calisthenics and Oral Reading to be taken on such days as may best suit the convenience of of the Examiners.

December 13th-17th.—Practical Teaching.

December 17th.—Closing Exercises, etc.

Third Class—At the County Model Schools.

The closing examinations of the County Model Schools will begin on **Monday, 13th December,** and continue as many days as the Board of Examiners may deem necessary:—

Monday, 13th December.—Education (Theory), Education (Methods).

Tuesday, 14th December.—Physiology and Hygiene, School Law.

Optional subjects on Tuesday afternoon. Practical Teaching to follow Written Examinations.

ENTRANCE EXAMINATIONS—At the High Schools and at certain Public Schools approved by the Minister.

Tuesday, December 21st.—Composition, Drawing, Arithmetic, Orthography.

Wednesday, December 22nd.—Grammar, Geography, History.

Thursday, December 23rd.—Literature, Writing.

Reading to be taken on the above days at such hours as may suit the convenience of the Examiners.

There will be no formal paper in Orthoëpy, but the Examiner in Oral Reading is instructed to consider the pronunciation of the candidates, in awarding their standing.

Candidates are required to submit Drawing Book No. 4 *or* No. 5, not Books Nos. 4 *and* 5.

EDUCATION DEPARTMENT,
November, 1886.