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THE CANADA
EDUCATIONAL MONTHLY
AND SCHOOL MAGAZINE.

AUGUST-SEPTEMBER, 1893.

ECONOMIC FEATURES OF THE DOMINION OF CANADA.

BY C. OCHILTREE-MACDONALD.

IN pursuing the polemics of the Dominion of Canada one is impressed with the great energy which has forsaken the plough for the Public Press or the Party Forum; the obscure perception of the exceptional destinies to which the country is hastening on, and the indifference of a considerable percentage of the people to the economic advantages which make Canada the head, and not, as American philosophers declare, the tail among the nations of the continent. There is, however, I am apt to believe, a rising generation of Canadians, which in its maturity shall provide the Dominion with a school of economists who will carry the country forward with mightier strides to its predestined place among the nations of the race. To such and to those who train the nascent public mind in the public schools, I am, in this paper, to point out the economic supremacy of the Dominion of Canada. The section of the country to which the students' attention should first be directed is the spur of the Alleghany or Apellachian Mountains, geographically known as the peninsula of Nova Scotia and Island of Cape Breton, which are continued as an enormous

range of submerged mountains, four miles high, to the British Isles, appearing as Newfoundland and Ireland. The anthracite coal regions of Pennsylvania, which still contain 6,898,000,000 tons of available and marketable coal, repose upon the eastern slopes of these Alleghanies and appear again as soft bituminous coal of similar seam dimensions in Nova Scotia, whence they drop into the ocean—throwing up an important fringe into eastern Cape Breton—en route to Newfoundland and Ireland. Owing to the possession of these Nova Scotian, and more especially the Cape Breton collieries, Canada enjoys the important supremacy of the solitary coal fields of the Atlantic seaboard of North America. In these coal districts twenty collieries cater for the markets of New Brunswick, Newfoundland, Prince Edward Island, Quebec, West Indies and other countries, including the home or Nova Scotian market, to the extent of 2,000,000 tons, and of the 1,000,000 tons of bituminous coal annually consumed in the New England States, rapid strides are being taken to supply a considerable proportion. I think that these coal fields may be termed imperial in every sense

of the word, for not alone do they feed the furnaces of the naval armament, thriving factory, or merchant marine : but they occupy an easy position in an island which the inexorable laws of economy are pushing into prominence as the future commercial rendezvous of the trade routes of the Hinterlands and in which the strategic Louisburg, three days' steam from Britain, will surely impair the prestige of many of the Atlantic cities of the hour. This feature of Nova Scotia should be reviewed before the scholar and the statesman with emphasis, for it infers that western traffic will pursue the cheap water routes of the great lakes and St. Lawrence in preference to the land routes now in use, or the Erie Canal. I think we may fairly escape the rebuke of egotism in spite of such optimistic writing, for if an economic route for trade be struck off on any map, such must penetrate the lakes and great river even unto Louisburg, on account of the reduction of cost and minimum of distance to the great market in which all nations struggle to participate. These are undoubtedly important considerations in favour of Cape Breton and indisputably point to supremacy down by the sea. Further down the coast the stern allied industries of iron and steel mark out Nova Scotia as the seat of steel shipbuilding when that era shall begin. The present dimensions of the industries are sufficient to supply the important implement manufactories of the Ontarian peninsula with the sections, seen later on as reaping and such machines in the tall grain of the farms of the west, and iron pigs, bars, etc., are now manufactured in picturesque Acadia for native consumption to a degree which promises well. Thus the approaches to the Dominion are guarded by stern and rugged industries upon which vast vested interests which have driven back the overflowing tides of exterior

arrogance securely rest. Pursuing the theme of the carboniferous the student may progress into the province of New Brunswick. It should be clearly understood that although the quantity of coal in this province, which was recently termed by a writer in the "London Financial Standard," "Canada's Sick Man," is estimated to be 150,000,000 tons, the coal future is remote. In fact, New Brunswick is one of the remoter coal fields of the Dominion of Canada to which, with the coal fields proper, I have given considerable prominence in the "London Colliery Guardian" from time to time. As a remote coal field the stress of competition from the Nova Scotian mines must inhibit development for many decades, consequently the triangular coal field of the Straits of Northumberland has no bearing or influence upon the economics of Canada. The spur from these to the prairie coal fields is without coal. The student will, however, discover that the enormous facilities for delivering Nova Scotian coal via water remove the disadvantage under which Quebec and Ontario might be supposed to lie. In effect, the Nova Scotian coal can penetrate a parallel of longitude, beyond which the Dominion is rendered independent by the coals of the region of eternal coal of which I have already designated the North-West coal fields, in the "Colliery Guardian." The fuels of the North-West Territories of the Dominion of Canada are literally eternal in quantity. Now the student must step in and divide them up with mathematical precision into three bands, *i e.*, advancing towards the mountains—Lignite, Lignitic and Bituminous.

LIGNITE COAL.—This is a substance resembling improved peat and must be recognized as of considerable value in any prairie country. It is, however, reduced in value in the present state of the country owing to the competi-

tion of the bituminous fuel alluded to, which is distributed with facility of means by the rail and exceptional water facilities of the regions under cultivation. But the ultimate value of such deposits to the populous districts which shall soon dot the expanse of prairies under the steady influence of the disproportion of European races to European territories cannot be ignored. Consequently these lignites have a distinct place in the economy of the West, which the student can perhaps only fully appreciate as a student of the industrial economics of the European countries in which such fuels are largely consumed, Germany, France and Austria, to wit.

LIGNITIC COAL.—This is a class of coal intermediate between the latter and the bituminous coal, and to which the above remarks are also applicable.

TRUE COAL.—The true and anthracite coals at the foot of the Rocky Mountains are too well known in the economics of the North West Territories to require any particular reference here. They lie in a position to the north of the boundary line, which practically renders the adjacent American territory tributary to the Canadian mines; and as to the anthracite, supply San Francisco and all the centres of consumption of the seaboard with that class of fuel. Large sums of Californian capital were invested in the development of this class of fuel, and the future of the two industries will outstrip the prosperity of the present state of the enterprises. Very complete details of these mines are given in "The Collieries of British North America," from this pen, in *The "Colliery Guardian."* The student is now confronted with the vast coal fields of British Columbia situate on the island of Vancouver; like Cape Breton, the sole possessor of bituminous coal upon a gigantic seaboard. The hypothesis of the coal belt may be introduced in considering these

collieries. The coals of Nova Scotia, pursuing the course apparent by the northeast strike of the coal measures, which coincides with the submerged transatlantic range of mountains noticed, reach the British Isles, and, first appearing at Kilkenny, strike into England. One branch of these measures at least drops into the North Sea, as the Durham and Northumberland coal fields, and the hypothesis declares that the European coal fields and those which appear in parts of Asia, are sections of the great belt which stretches across the Atlantic. The coalfields of the Japanese Arch are next cited as the succeeding important section, and theory pursues the measures under the waters of the North Pacific to the northwest corner of Vancouver Island, when the coal measures rise out of the water, striking southeast across the island to the two coal basins of Nanaimo and Comox. The collieries in the two basins once more demonstrate the supremacy of Canada. Without a doubt the Pacific States, and especially the city of San Francisco, are dependent upon them, notwithstanding the competition of Australian and British fuels, and, as is well known, all the greater industries or seats of commercial dominion must cluster around the collieries whence supplies are derived. Numerous other facts might be adduced in proof of the present and future supremacy of the Dominion of Canada in this wise, but space fails and the reader, to whom the germ of idea is alone given here, may pursue the inspiring theme at leisure, with the aid, if he cares, of "The Northern Pacific Collieries," published in the "London Colliery Guardian."

Equipped at each extremity with unrivalled collieries, and penetrated from the Atlantic to beyond the 90th parallel by a gigantic system of water ways fit for ocean transports, Canada also possesses the choicest agricultural

lands of the temperate zone, one portion of which, 200,000,000 acres in extent, produces an average of twenty-seven bushels of wheat against twelve bushels per average American acre. Into this the straitened population of old Europe are swiftly making their way; presently a vast exodus of the races will drift west along the 49th parallel of north latitude, alike the boundary of the Canadian Hinterland and the approximate southern limit of the home of the Anglo-Saxon race. It is evident to me, as a resident in Europe, that the advantages of the Old must presently give place to the attractions of the New World. Populations in Great Britain are vastly disproportioned to the area of the land, and owing to the rise of manufactures as a branch of that civilization which has penetrated even the remotest portions of the earth, British markets are on the down grade. What is the consequence? Let the inquirers penetrate the homes of Great Britain from cottage to mansion and remark the impoverishment of an important section of the race. Furthermore, I have observed that a dim perception of Canada as the theatre of their talent, aims and effort is entering the mind of the democracy. That democracy never hesitates when once the truth dawns upon it. With energy and precision it sweeps every obstacle before it and the exodus of the overpressed, urged on by this irresistible force, will stream, within the span of this generation, into the fertile plains of Western Canada, north of the 49th, where wealth, commerce and dominion are predestined by the laws of the economy of nations to prevail. In this manner and with comparative ease Canada can expand her population, dominion and wealth, but another important factor in her supremacy must be noted, viz, the attitude of the American farmer towards her agricul-

tural reserves. Quite recently a writer in the Nineteenth Century practically declared that the American agriculturist was almost ruined, and there is sufficient truth in the statement to materially affect Canada. In a country where the farmer is prevented on the one hand by the extortion of monopolies or over capitalized companies from refreshing his land with a cheap phosphate, and plundered on every other hand by the combines, tariffs and "corners" of the hour, it is not surprising that in seven agricultural States at least, viz: Alabama, Iowa, Illinois, Kansas, Tennessee, Nebraska, and Missouri, mortgages have increased \$260,000,000 in nine (heavy tariff) years, and that the private indebtedness of the people of the entire Republic should have reached \$6,000,000,000, secured in real estate alone. This burden is bearing its natural fruits, and emigration to a free farm district is the sole relief for the struggling farmer. There is no longer an empty American West into which the Eastern agriculturist can enter, and he must in consequence cross the frontier and aid in the task of empire construction in Canada. This process is now in operation, and ere long American and British will shake hands in the prairies of Canada and put a mutual shoulder to the wheel. Under such circumstances trade will converge into the St. Lawrence, all or the chief points of exportation will cluster along the headwaters of the river, and the American, driven by the exigencies of commerce to deal with a people who can give him a clearer margin of profit, owing to cheaper exportation and importation facilities than New York, per Erie Canal, Boston, or Portland can offer, will abandon the idea of inviting that people to join him politically, in favor of obtaining privileges of participation in the new volume of trade.

DR. BRYCE ON STATE SCHOOLS.

BY REV. GEORGE SUTHERLAND.

IN the *Presbyterian Review* of March 2nd, there is published a portion of an address on the "Aim of the Public Schools," by the Rev. Dr. Bryce, of Manitoba College. The portion given to the public is that which relates to "religious instruction in the schools." The published opinions of teachers of religion in this day may well receive attention, and specially of those who are the trainers of teachers in our theological seminaries.

Dr. Bryce affirms that "the Public school has no function in the sphere of religious instruction." In plain terms, that the Public school has nothing to do with religion. It must keep outside the whole circle of religion—that is, of God, of the Bible, of sin, and of salvation. We know something of such doctrine in Australia, and we are reaping the fruits of it in a widespread irreligion, infidelity and ungodliness in the rising generation of young men and young women beyond anything ever seen in the past. When our Public school system was supplanting the denominational system, an effort was made by a Bible combination to have a lesson every day, wholly unsectarian, from the inspired oracles of heavenly wisdom, but our strongest opponents were men of Dr. Bryce's opinion. Ministers of religion, trained in antipathy to State Churches, carried their abhorrence of State connection into the school question, and voted down the Bible lesson with feelings that found vent in such expressions as these in the hearing of the writer: "I am sick of religion in the schools;" "I was choked with religion in the school when I had to repeat the 119th Psalm."

We stand up for no extravagance and no harsh measures in matters of conscience, but we do stand up for the honour of God and the welfare of the young in every part of this fallen world.

What is understood as "religious instruction" by Dr. Bryce? If only sectarian or denominational instruction I am at one with him. The Bible is not sectarian, and all the essentials of its religion may be taught without a tinge of sectarianism. Our common Christianity may form the subject of a daily lesson, as set forth in its many forms and features in that wondrous collection of writings which we designate as par excellence, The Book. But the reader will, I conceive, be forced to the conclusion that Dr. Bryce's meaning is, that religion in no form shall enter the Public school. Against that doctrine I raise the most emphatic objection which language can express. Dr. Bryce proceeds to count the number of hours in school in contrast with those out of it—as 30 to 168. The argument is of no value, one-half of the 168 might have been dropped for the hours of darkness. It is enough to say that the school hours are beyond all question the best and most important part of the whole week—and, therefore, of the life of the scholar. Another argument presented is, that his opinion is "the overwhelming opinion of the great majority of the Dominion," and draws the conclusion that it is "not allowable for the State to give religious instruction in the schools." But it requires no effort to disprove this statement from Dr. Bryce's own words. He admits that "the whole Roman Catholic Church is against

him, a part of the Church of England, and a few State Churchmen among the Presbyterians." If so, where is his overwhelming majority? We may safely say that by far the larger part of the Church of England, and I believe the larger part of the Presbyterians, such as were brought up in Established Church and Free Church principles, are against him. If polled to-day I believe that five out of every seven enlightened Protestants in the Dominion would vote for a daily Bible lesson in the Public schools.

But apart from numbers, I look for performance of what is right, of what is duty, of what is wisdom. Ten with truth and the Almighty are stronger than ten millions in the wrong.

Is it wrong for the State to own and honour God in her institutions? Can even a Deist say so? Shall a Christian say that the State has nothing to do with religion—that the servant has nothing to do with his master, the creature with the Creator? What is the State but the creation of God? What are rulers from the highest to the lowest but servants of Jesus Christ the King of all the kings of earth? What mean these words, "Be instructed, ye judges of the earth, serve the Lord with fear, kiss the son lest he be angry." "These mine enemies that would not have me to reign over them bring hither and slay them before me." Antipathy to State Churches has led good men to wild extremes. I do not advocate the State endowment of any Church in these days; but I do advocate the honour of our enthroned King by the civil servants who hold office under Him, *in their official capacity*, in every way consistent with their civil position. The time will come when kings, as such, will be nursing-fathers to the Church—that is, the civil heads in all lands will count it their highest duty to acknowledge the Lord in all

their work, and act on the high and noble principle applicable to all—"Whatsoever ye do in word or deed, do all to the glory of God."

But I call attention to another point of vital importance. The State has undertaken a great task; it has come into the room of the parent, in a very important department of duty—instruction and training, where the parent has not sufficient time or capacity. The State cannot do everything for the parent. It does not profess to do so. But it does profess to do certain things of essential value. What are these? Dr. Bryce says that the "aim of the Public schools" is to produce subjects "reliable, patriotic and intelligent." These are the three terms selected. Intelligent and patriotic we can understand, but what is meant by "reliable." Can a man be reliable who is not honest, sober, industrious, truthful, pure, merciful as opposed to cruel, and possessed of the fear of God where the eye of man is not on him. And how is this moral character to be formed without a standard of morality? Shall the Bible be referred to as condemning lies, and theft, and impurity, and violence and yet be excluded from the school? Shall there be any reference to an invisible, just and holy God and yet His Word be excluded and not a page of it read by teacher or scholars? Where is wisdom, when the beginning of it, the fear of God, is not inculcated? Do I hear the reply, All this is very well at home, in the Sabbath school and in the church, but the school is no place for it. Then how can the school train reliable citizens or subjects? Would it not be well to revise and modify in a new country theories that had their origin in circumstances widely different, where the State favoured some and not others, it may be equally deserving in many respects? What

instruction, intellectual or moral, can be received in the majority of homes, where the father is away all day and returns wearied with toil, and the mother is burdened with household cares, and labours from daylight to bedtime? And shall we speak of Sabbath schools? What is one hour in the week on a Sabbath afternoon or morning compared with the admitted thirty of all the week under a teacher that ought to be more competent than the great majority employed as Sabbath school teachers? We write of what we know from a very wide experience. Look well to the day schools if you wish to save the country; if you wish to raise it to sobriety, respectability and honour, if you wish to see it stamped with high moral integrity and exhibiting its fruit in devout regard for God and His Church, and a due observance of that day which is a safeguard of all our interests for time and eternity. But never breathe the sentiment in school or out of it, that the school has nothing to do with God or His laws, with our blessed Redeemer and His precious Gospel. I hold it as established that there are tens of thousands of the young who will never know the great truths of the Bible, of God and eternity, if they learn them not in the Public school, for thousands of parents never enter a church and never read a page of the Bible from one end of the year to the other. What fruit can you expect from such a tree? Was it a school without a Bible that made Scotland what she was? I may safely affirm what millions of Scotchmen will endorse, that Scotland had never risen to make her mark in the world, as she has done, if the Word of God had been denied admission into her schools.

I maintain that there can be no suitable education to qualify for exemplary citizenship without moral

training from the Bible. It is our only standard of morality. Morality lies at the foundation of State prosperity and State stability. Hence the Bible has a claim to enter every Public school before every other book. Our public officers are sworn on that Book. Our Queen holds the sceptre by virtue of an oath taken on that Book—an appeal to the Invisible God whose revealed will that is. And yet, forsooth, by some singular perversity of spirit, politicians, lawmakers—and, tell it not in Gath, ministers of religion! object to the voice of God being heard from day to day in the school, where the young are supposed to be taught to respect that very morality of which they are now to be kept in ignorance! I have long been an advocate for the common Public School, but if the school is to be opened and closed without prayer, and if the Bible is to be shut out from it, then I venture to prophesy that the Churches will be forced, in self-respect and self-defence, to open schools for their own children, where the young will grow up with the fear of God before their eyes. My attitude to the Church of Rome is well known, but I cannot shut my eyes to the force of Cardinal Moran's language in our city, when he recently declared that "schools that were not based on religion never could and never would attract Catholic children." The Roman Catholic schools have increased fourfold within the last few years. Their hopes for the future rest on moulding the young in their impressible years. But the Protestant Churches, to their very great loss, and to the permanent injury of the country, have set too little value on the Scriptural training of the rising generation in the Public schools.

My last argument is, that the conscience with the emotional nature demands a culture not less than the

intellect. That culture is impossible without a standard of morality. On the enlightenment and sensibility of conscience depends the propriety of moral conduct. If the education leaves the conscience untrained, it is radically defective. It should not claim to prepare the youth for the duties of citizenship—to make men and women law-respecting. And if it cannot lay claim to do an essential

part of education, it is unworthy of the support of a Christian community or of a profession in a theological seminary. Let this radical defect be supplied by daily prayer to Almighty God, and daily training from that Book which is a lamp to the feet and a light to the path of the young as well as of the old.—*The Presbyterian Review*

SIDNEY, May 16th, 1893.

COMMIT TO MEMORY.

THE BREAD OF INTELLECTUAL AND SPIRITUAL LIFE—GEMS AND GOLD OF LITERATURE.

THE favourite books of Tennyson were the Bible and Shakespeare. He once advised a boy to read daily at least one verse of the former and some lines from the latter. "The Bible," he said, "will teach you how to speak to God; Shakespeare will teach you how to speak to your fellows." It is well also to commit to memory many of these and other precious things, and thus make them our own in a way that the mere reading of them can never do.

To what extent should the child memorize? Of all people perhaps teachers are most to be congratulated upon the opportunities their work affords for good to themselves and others. The best thought, most suggestive and most helpful, of the choice spirits of the ages, in its finest expression, is theirs—if they will have it. But is anything more true of thousands of teachers than that, in the midst of plenty they starve their own souls and those of their pupils? Shall the memory be merely a sort of refuse chamber of odds and ends of personal experience, a junk-shop collection of things of little value, or

shall it be a treasure-chamber filled with things of inestimable value, and radiant with light and beauty?

Let the habit of committing to memory be formed early. Let it be continued through school days, and all the after years of life. We shall thus become educated in a high and true sense—fed, for that is what the word means, upon intellectual manna which might well be the food of angels. We shall be educated, because widely familiar with the very best prose and verse in the literature of the world, and quickly and gladly responsive to the thought of the author. Not a few of these gems—"their price above rubies"—are short as to number of lines and occupy but little space in print, as "Abou Ben Adhem," "Ozymandias," "Crossing the Bar," and a hundred others.

This habit once acquired and steadily followed is one of the most profitable and enjoyable that can be formed by quiet people who never have occasion to make a public address; while the teachers who must frequently address their schools, to

school superintendents, clergymen, lawyers and public speakers generally, it is of immense value. To exercise the memory in the manner suggested is to strengthen it and to keep it strong. The imagination is at the same time cultivated, the vocabulary improved, and the best expression of the best thought of the masters becomes our own; just as the musician thoroughly at one with his art is what he is because of close sympathy with the tone masters, and his perfect knowledge both of the letter and spirit of the best things they have written. Beyond question this truth holds in literature no less than in music.

How many teachers can repeat accurately a half dozen of the Psalms, or a dozen choice poems of moderate length which the world has taken to its heart, or a like number of fine things in prose? How many have their pupils to commit these things to memory? They are the finest of the wheat, and they remain when the chaff and saw dust of non-essentials in arithmetic, grammar, geography and other branches are utterly blown away. Securely garnered in the memory, these things lift the life by lifting the thought, the love. They elevate the entire being into a finer and purer atmosphere, make distasteful things that are low and mean, present new ideals and new aspirations. Through them more and more we walk by faith in the unseen. And of all education—all feeling of mind and heart from childhood to old age—this is the rarest and the best.

Often a single poem made one's own in youth influences thought and character and affords gratification for a life-time. A few days since a gentleman remarked in our hearing: "I thank the teacher who made me commit Bryant's 'Thanatopsis' to memory. I didn't want to do it, but he compelled it. I have thanked him ever

since, and much more as a man than when a boy." It is quite possible for pupils to do fairly good work in the ordinary branches of school training, and yet to have one or two things like this stand out above everything else, to be remembered for a life-time with gladness and gratitude. Is there not a suggestion here for the thoughtful teacher?

We like the practical thought of Tennyson, which makes one part of this work all the while moral and religious. Let the selections for the week be, if possible, two in number: the first from the Bible or sacred song, and the second from the world of literature, prose or verse, in other directions—say the ninetyeth psalm and "Lincoln's Speech at Gettysburg;" or "Lead, Kindly Light" and Longfellow's "Psalm of Life;" or the twenty-third psalm and Lowell's "Once to Every Man or Nation;" or the nineteenth psalm and "Home Sweet Home;" or "My Country, 'Tis of Thee," and "The Chambered Nautilus;" or the thirteenth chapter of Corinthians and "The Last Rose of Summer;" or any others of hundreds of good things moral, religious, patriotic, descriptive, or sentimental in the best sense of the word, that we should all be very glad to have securely lodged in the memory. And let the teacher always commit to memory what is here required of the pupil. Should two each week be too many, let the selections alternate, sacred and secular, one each week.

Any good book of varied and choice selections can and should be supplemented by the Bible, and by a manuscript collection of best things dictated by the teacher and written down by the pupil. In our own school two hours on Tuesday morning are given to this exercise. The selections for the week that have been memorized are first written by the pupils, effort being made to reproduce them with

spelling, capitals and punctuation, as found upon the page. The books are then exchanged, the selections read by the teacher, all errors marked by the pupils and the work graded accordingly. The selections for the following week are then announced, read and discussed at such length as time will permit, attention being directed to anything new or of special interest which might be overlooked by the pupil.

Memorize accurately. Get it as the author left it, the exact words he used, and each word in its place. See the capital letters, the spelling and meaning of unusual words, and the punctuation marks, so that you could write it as "copy" for the printer. This requires care, close observation, thought, and encourages the habit of close attention.

In committing to memory also try to see the page in your mind as it lay before you.

An aid of some value is to use the pencil and the ordinary "four and tally" count. For each stroke of the pencil held upon it, repeat the sentence, or line, or verse, or selection. This enables the pupil to keep ready count of the number of times he or she has repeated it. For a time the school might do this work aloud and in unison, so that all would fall in with the method. This means close strain upon the attention, but it means definite result as well.

Each pupil should have a blank book in which these things may be written from dictation or copied from the blackboard. Such book will be highly prized in after years.—*Educational Journal*.

HERBART II.

BY L. SEELEY, LAKE FOREST UNIVERSITY.

HARMONIOUS DEVELOPMENT.

THE purpose of education, according to Herbart, is the harmonious development of the character from all sides. He says that the real foundation of all educational purpose is ethical, and that there are five moral ideas around which all instruction must centre.

The first of these is that of *inner freedom*, or the agreement of the will with its own law-giving judgment. Herbart says: "The will is free when it emancipates itself from the bondage of desire that it may become subject to the good and may serve the same." As the child has no law-giving judgment, as its perception of right and good is dim and weak, the necessity for some outside law-giving will be-

comes apparent—hence, the necessity of instruction by a teacher or parent. The child must grow gradually into strength of insight, or judgment, that is, a law-giving will. So the building and training of the will-power comes to be a great aim in systematic education, if moral character is to be the outcome of teaching. The idea of *inner freedom* is the idea of all ideas with Herbart, the virtue of all virtues, and this embodies his notion of the end of education.

The second idea is that of *perfection*, which should be sought in the judgment or law-giving will of the child. We have seen that the child does not possess this, but it is the duty of the instructor to bring him to it. Until this is attained, the child is led by the will of others; when it is at-

tained, one end of education is reached, and the child is able to proceed independently. This involves the ideas of strength, concentration, and harmonious action of the will.

The third idea is that of *benevolence* or *good-will*, that will which thinks of good to others. The importance of this end in education cannot be over-estimated. It would inculcate unselfishness in the child, and lead him duly to respect the wishes and needs of others. It implants motives which have regard to the up-building of humanity, and which take an interest in persons and enterprises that do not involve one's own self-interest. It is the same broad thought which causes the church to seek to extend her borders to men and nations of different blood and widely varying interests; it causes missionaries to leave home and native land to endure untold privations and dangers among strangers for their moral and spiritual elevation. It prompts to heroic deeds, and, better still, to deeds of unselfishness, not simply because of divine command, but from love of fellow-men. It opens the purse of the wealthy to give to church, and school, and hospital, and for sweet Charity's sake. This is one of the noblest sides of education, a side too often and too grossly neglected in systems of education, and which is of the utmost importance in the construction of character.

The fourth idea is that of *rights*, meaning the rule of agreement between different individuals and displeasure in strife. Herbart teaches that the principles of the golden rule have a part in the technical education of every child. He must be taught that the world does not belong to him, and that others have rights that must be respected. The lesson, which is so well learned in large families where there is limited means, that of mutual forbearance, that of sharing one's pos-

sessions, that of helpfulness and sympathy, that of lively interest in the welfare of all, must be taught in the school to those not favoured by being brought up in a large family. The school must supplement what the family lacks, must correct its errors, must extend its wise and good teachings. And so, a proper regard for *rights* becomes an important part in a system of harmonious and complete education.

The fifth idea is that of *equity*, as the reward for good and bad actions. While it demands its own, it accords to others what belongs to them. It thus marks the wrong of stealing, cheating, gambling, and any other means of appropriating what belongs to another. It recognizes just punishment for violation of the principle of equity, while it rewards its recognition.

Thus love, the sense of legal rights, and equity,—the last three of these ideas,—are the three universal virtues. Virtue is the chief pedagogical aim. The development of moral character is the highest aim of education, and to that thought Herbart's whole system of pedagogics bends, as is seen by discussion of the five ideas just studied.

Teaching then becomes not simply the imparting of certain facts of history, literature, science, or art for the sake of those facts, but the building of a perfect and harmonious character. These facts are imparted as a means to an end and not as the end itself. This is one of the broadest and most important thoughts connected with the science of education. It is applicable to every phase of teaching, in primary school and in college; in public and private school; by the general teacher and by the specialist. Thus, the teacher of history does not teach simply to give the data of the past, but to add to the aspirations, the purposes, and the views of his pupils. The

teacher of science does not aim merely to impart scientific facts, but to open the eyes to the wonderful things of nature—the system, the symmetry, the beauty of which can only find its origin in some great intelligent First Cause.

The teacher of music, or any form of art, will not consent to the superficial means which may expect immediate results and give temporary pleasure; but will insist upon the slow, patient, enduring progress which ultimately results in a conception of the divine art, and makes it a part of the very being and life.

Mechanical teaching, cramming, and other evils of this nature become impossible, for the teacher can have no object in resorting to such means. He sees in every child an ideal man, and he strives to reach his ideal. Thus, as already stated, the important thought is given to the world that it is not the state, not the community, not the family that is to be educated, but the individual. This is one of the sublimest thoughts of modern education, and only as systems bend to this

idea, more and more will they keep pace with the times. The future education will not be that which promotes whole classes in a bunch at the end of a stated period; not that which measures off so many pages of arithmetic, grammar, or history, to be gone over by a whole class in so many weeks or months; not that which crams wholesale material into a whole class, foots up their percentages, and triumphantly proclaims the success of the teacher who succeeds in getting the highest grades, and degrades the teacher who has lower ones; not that which averages the mass and estimates its power by what the whole can do; but the education of the future will be that which studies the individuality of every pupil in the class, and advances each one when he is ready to be advanced, which studies his characteristics, his ability, and his wants, and shapes itself with respect to those things. Then the development will be proper, philosophical, and harmonious, and it will result in perfected manhood and womanhood. — *The School Journal.*

A COLD WAVE.

BY SARAH E. SCALES, LOWELL, MASS.

WHEN we take up the paper and look at the weather probabilities, we often see in winter, as the final clause, "followed by a cold wave."

This, according to the Weather Bureau, consists not so much in the intensity of the cold, as the drop in the temperature from one hour of a certain day to the same hour the next. This must be at least fifteen degrees Fahrenheit, and is frequently more in some sections; also, that the minimum

temperature will sink to forty-five degrees Fahrenheit, or below.

To understand something of the cause which induces these changes, one must consider first the condition of the atmosphere, or the air surrounding the earth.

This is variously estimated as to height, and envelops the earth completely.

This is acted upon by various forces. The rotation of the earth on its axis, the effect of the sun's rays,

and the force of gravity, etc., all tend to render it like an ocean, whose waves are like those of the sea, and whose crests are termed high, and the depressions or trough, low areas.

These areas of pressure alternate with each other several hundred miles apart, and move over the country at a varying velocity of from six to nine hundred miles a day, sometimes.

This pressure is measured by instruments called barometers, and the temperature by thermometers.

Of the barometer we notice that it rises with the west, north-west, and north wind, and the air is clear and colder; and falls with east, south-east, and south, and the air indicates foul or stormy weather.

The thermometer records changes the reverse of these, viz: it rises with an east, south-east, and south wind, and falls with a west, north-west, and north wind. This is the Northern Hemisphere. Some features of a low pressure may be noticed; a generally elliptical shaped area with perhaps its longest diameter more frequently from the N. E. to S. W.

The winds move in a spiral direction, inward and upward in a direction contrary to the hands of a watch or clock.

Places situated in the easterly quadrants of a low area are characterized by cloudy weather, south, and south-east winds, precipitation, high temperature in summer and winter, falling barometer, increasing humidity.

In the western quadrants falling temperature, rising barometer, west and north-west winds, and clearing weather.

A high area has the winds directly opposite to the low. They move spirally outward in a direction with the hands of a clock or watch, and there is generally calm, clear weather at the centre, and places situated in the easterly quadrants have cool, northerly winds, and those in the

western quadrants southerly winds. The movements of a low area over a section produce an indraughting of air, to replace that drawn inward and upward; and the temperature which has been abnormally high, now as the low passes to the east of a place, changes with the wind now from the north and north-west, and cools rapidly by the pouring in of dry, cool air.

If this is at least fifteen degrees or more lower in temperature than the air was at the same time the day before, and the thermometer registers 45° F., at least, it is called a cold wave or norther.

This cold wave is on the outskirts of a high area, somewhat in advance of the centre, and sometimes it is accompanied with fine, hard particles of snow, producing what is termed a "blizzard."

The waves of air, high and low, are not generally of a height to over-top the Rocky Mountains, which form a barrier to the progress westward of many of them, so that places westward escape these cold waves, which pour over the eastern slope.

There are three paths which seem to be the favorites. One, southward from British America, east of the Rockies, one directly east, and a path intermediate between the two.

The barren, treeless regions of some parts of British America seem to afford great facilities for the making up of these cold waves. From thence, they move in paths before mentioned.

When they pass southward from the Arctic regions we hear of them first in the north-west of the United States, from whence they spread over the states and territories with great rapidity and intensity.

Sometimes they extend south as far almost as the Gulf, doing great damage.

In their progress mountain ranges frequently form barriers, and protect countries to the south or east of

them, as the Arkansas Range and the Appalachian Mountains on the east often protect Virginia and adjacent countries, while the Ohio valley and Tennessee west experience the wave.

These changes are predicated from the Weather Bureau, in advance, so

that precautions can be taken, and much damage averted. It is to be hoped that the appropriation for this Bureau, which is now limited, will be increased until it is able to do the greatest good possible to the country at large.

“WHAT IS WOMANLY.”

NEVER before have people given expression to so many divergent conceptions of what is womanly or unwomanly as at the present time.

It must be admitted that the term “unwomanly” is applied to many professions to-day which were formerly comparatively free from that stigma. It seems almost as if people were trying to increase the difficulties in the way of self-supporting women, and so debar them from any way of gaining a livelihood other than that of a teacher, governess, or companion. People did not think it “unwomanly” to do circus work, follow the arts, or even to pose as a model. All this is tabooed to-day. Yet true womanliness is much rarer in our days of conventionalism, when society has become so that it is even called “unwomanly” to fight against its depravity.

It will be impossible to change this deplorable state of things, at once. Only sensible education can restore to women that natural freshness, open-heartedness, warmth and dislike of conventional lies which makes even a plain woman attractive. Only a different education can again elevate to their proper station those ancient Teuton goddesses, Simplicity and Natural Behaviour. And they are sadly needed. In times of trial, conventionalities do not avail us; true worth alone will enable us to stand up against vicissitudes. That woman should be true is as necessary to the

nation as that men should be honorable. If woman loses her inward *noblesse* the whole nation deteriorates, even if it should have all the outward signs of prosperity.

The true womanly virtues are chastity, self-command, good manners, truthfulness, penetration, compassion, warm sympathy, tact and strength of will. These qualities must go together to make up the true character of woman. When only some of these qualities are existent, she appears either unduly weak or unpleasantly masculine. I will illustrate this by an example. Before me lies a volume entitled “Three and a Half Months a Factory Girl,” in which a lady of high culture relates her experiences as a laboring woman. To make a trial of this kind undoubtedly requires a strong will, courage and noble spirit. For a time she discarded all her former habits, lived voluntarily in the midst of poverty and negligence, experienced brutalities, and even bore cheerfully the unworthy proposals made to her by the foreman of the factory. All this deserves to be acknowledged, but it must be doubted if such experiments lead to any practical results, while they must necessarily be accompanied by lasting evils. It must certainly lessen her *naivete* and her purity of thought, qualities which are so valuable that they should not be endangered without actual necessity.

We have come of late to look upon thoughtless behaviour and a want of decision as "womanly." The reason for this is to be found in the school life. Mothers leave everything to the school. But the school does not educate, it only teaches. Those high mental qualities which we begin to miss in our women cannot be imparted by precept, but only by example. Is it, then, a wonder that our sisters and wives are wanting in soul and sentiment? And yet only a woman whose sentiments are pure can exercise an ennobling influence over us; and such a one will exercise it, even outside of her own home, as a teacher, friend, adviser, nurse—in fact, everywhere. We do not want women to be purely practical. We want women to be on the side of everything good and beautiful, even if they cannot reap any apparent advantages by it. We want her to be on the side of justice for its

own sake, without ostentation. I do not deny that it is very difficult in some circles to educate woman in her natural simplicity and modesty. But it is a mistake to suppose that it is impossible. It has also been said that by encouraging sentiment we lessen intelligence. This is not true. Woman's instinct teaches her to discriminate between the knowledge which she ought to possess and that which is outside of her proper domain. The woman with the most knowledge is often least fitted to be a teacher. This is proven by the experience of the Prussian and other governments with the principals of girls' schools. The lady who could pass the examinations most successfully has usually been appointed, but the experiment has proved very unsatisfactory. The principals succeeded in turning loose upon the world quite a number of graduates, but no women.—*Literary Digest.*

A NEW COURSE OF STUDY.

THERE is a new spirit beginning to animate the educational forces of the country. It is following the wave of materialism and mechanism that a few years ago threatened to convert every school into a workshop. It is proclaiming that education must strive chiefly to stimulate the spiritual forces that are the life and soul of all forms of social activity. The world of deeds is but the utterance of the character of those who perform them. Teachers have declared for many years that the chief purpose of the school is the building of character. We half believe that somehow the study of the logic of arithmetic, and of the technicalities of grammar, and the location of things upon the earth, and of the

spelling of words contributes to this end. The inquiring pupil has been asking "of what good is this subject to me," and we have answered "for discipline." But we are beginning to see that neither the teacher nor the taught saw very clearly the meaning of the answer.

A reaction from this exclusive study of the form of the process of thinking threatened, as intimated above, to substitute doing for knowing by following the banner with the strange device of "Learn to Do by Doing." This made the judicious reformer hesitate and appear to fall back into the ranks of the formalists. He knew that the limit of the educative value of mere doing was soon reached and that this banner eventually led into a servitude

to mechanism more hopeless than the formalism to which it was opposed. At this juncture arises that combination of educational priest, prophet, and philosopher, and, under the name of Herbartianism, proposes to reinstate the spiritual element to a commanding position in education. He is priest, because of his reverence for the past; he is prophet, because of his vision of what is to be; and he is philosopher, because of his insight into the reasons of things and his recognition of the essential unity between the priest and the prophet. This all-sided view requires that both knowing and doing shall be emphasized in education. The school life must pursue those lines of spiritual activity that characterize the social order of which the child is to become an active member. The social order is first of all a moral order, the laws of which are active in all human relations. This social order is also an economic order, in which each works for all and all for each, that food, clothing, shelter and education may be furnished to every individual. This social order is a growing organism which readjusts itself continually to new knowledge and the new conditions born of it. It is both the fruit of the past and the seed of the future. Worthy membership in it requires a knowledge of its history.

But since the forces that constitute human society are so woven into an organism with the forces of nature that one could have no existence without the other—the one being the warp and the other the woof, so to speak, of the social order—a knowledge of nature is as important as a knowledge of man. We have blocked out here in the rough the foundation ideas of a course of study for the schools. But this is too vague and indefinite to have any force in modifying the instruction in the schools. Before the schools shall participate in this

new spirit that is beginning to find expression in educational circles, a well articulated course of study in sympathy with this new spirit must be formulated. We are saying that what is needed is to change the emphasis from form to content in our school studies. But this is not an easy thing to do. All the machinery of the school is run by the course of study as it is now interpreted. To change the emphasis from form to content means a new interpretation of the course. This means a new adjustment of the work done in the schools. Few of the school studies will then be taught as they have been taught heretofore, for the reason that teachers will then have different notions of their functions in educating the child.—*Public School Journal for July.*

Be satisfied if poetry be delightful, or helpful, or inspiring, or all these together, but do not consider too nicely why it is so.—*Lowell, Wordsworth, 1875.*

CABS AND CARS.—London has 10,000 cabs in constant use, carrying 80,000 persons a day; Paris, 6,000, carrying 60,000 persons and New York 1,500, carrying 15,000 persons, being, in this respect, behind several other American cities, among which are Philadelphia and Chicago. The cab rates in New York are high, being fifty cents a mile or one dollar a single hour. The first horse cars in New York were run along the Bowery in 1833. Now there are nineteen street railroads in that city, using 2,000 cars and 20,000 horses, and carrying 225,000,000 passengers yearly. With those carried on the elevated the sum total amounts to 400,000,000, nearly as many as are carried on the steam railroads, excluding purely local city lines.—*Public Opinion.*

THE AMERICAN WOMAN.

THOSE who find more to blame than to approve in the American young woman, who are shocked at the freedom of her ways, at her independence, at her scorn of social conventions, at her luxurious tastes and her fondness for admiration, have often made those traits the text of their accusations against the democratic institutions of the United States. According to their reasoning, the result could not be otherwise, given the same premises as a point of departure, namely, the customary association of young women and young men, equality of the sexes raised to an axiom, abdication of parental dictatorship, independence of children, and freedom of matrimonial choice. The eccentricities noticed by them are, in their view, the inevitable consequences of a democracy hostile by instinct to the principle of authority, endeavoring to reduce it everywhere to its minimum of action and control, extolling equality with an apostolic zeal and practicing it with the fervor of a neophyte. And now these pretended apostles of equality, these self-styled lovers of privilege, have ended with re-establishing inequality with the advantage on the woman's side, with making her the eminently privileged person, and, reversing the Asiatic conception, of elevating her into a despot and converting the man into a subject. It seems to us, however, that the influence of political institutions on social habits has been very much exaggerated. Unstable and mobile, the former change at the caprice or the passions or the necessities of the moment. Not so with that aggregation of usages and customs which rests upon uninterrupted traditions, upon a long transmission. They undergo modification, but slowly; they are the results of the experi-

ence of centuries, and never proceed by jumps in their evolution. More of the fundamentally primitive than is usually believed remains common to the Americans and the English in their relations to women; and the large place given to woman in the United States, and the greater independence she enjoys, flow as much from the change of medium as from the advanced intellectual position which she was able to take at the beginning and has long held.

But as the United States grows and becomes more refined, the difference between the sexes in this respect is diminishing. Yet while man has to a large extent recovered possession of the vantage-ground in mental cultivation occupied by woman, and while his stronger faculties, more robust organization, and more sustained will give him the superiority everywhere else, there is a social domain from which he could not and would not dispossess her—a domain hers by tradition and by concessions which he has made and she has accepted and extended. At this point becomes manifest the contrast between the Anglo-Saxon and the Latin races, the antithesis between the conception of the East and that of the West, the two poles of which are Asia and the United States, while its mean term is found in Central and Southern Europe. To these two poles correspond, in effect, a maximum and a minimum of human personality. This personality is nowhere so intense as in the United States, and nowhere less so than in the extreme East. England transmitted to the United States, with that basis of personality peculiar to the English race and more accentuated there than anywhere else in Europe, that respect for individuality which made itself manifest at an

early period in British laws and institutions.

Cantoned in her family and social domain, the American woman has till this time made only rare and timid incursions into the field of politics. But in the field in which she usually moves, we are struck, on a close examination of the various phases and details of life in the United States, with the important place she occupies. This is true to a higher degree in modest conditions, in the agricultural districts, in the farms and settlements and in populations of working people, than in the large cities. Not that these, too, do not contain curious types for study, essentially original, and tending in a high degree to reconcile the exigencies of the external features of modern life with lofty aspirations and an active philanthropy. Given, as the points of departure for woman's position in the United States, equality with man, intellectual and social predominance, with the charms of her sex refined and developed by natural selection, by unions between young women free to choose and a race of colonists energetic, vigorous, deeply imbued with

religious convictions, and respecting the conjugal bond, woman must necessarily appear, at any given moment, as the definite expression, the superior type of the race and the medium. She is to-day what the American exhibits her in Europe with a legitimate pride, the most finished work of the country's two centuries of civilization. It seems as if on the American soil, essentially democratic, Nature showed herself, in what concerns woman, more aristocratic than elsewhere, and that the genius of natural selection was working perpetually for the advancement of its elect. Of all these gifts which it has lavished upon her, one of the most characteristic is certainly adaptability. Few women in Europe possess in the same degree as the American woman the faculty of identifying themselves with their medium of changing country, climate and surroundings with so wonderful suppleness. More perfectly than others, she accommodates herself to circumstances, while she preserves her individuality in a strange surrounding. — *M. C. De Varigny, in the Popular Science Monthly for July.*

THE BRITISH EMPIRE.

THE tens of thousands who witnessed from within, the hundreds of thousands who witnessed from without, and the millions who have eagerly read of the stately and unique ceremonies by which the Imperial Institute has been inaugurated, were the genuine representatives of every part of our wonderful empire. Foreigners present, whether in official or tourist capacity, have correctly appreciated the true significance of the event. The Queen and Empress, not less respected than beloved by more than 400,000,000 subjects, received, with her son and heir apparent, the willing

homage of by far the largest national "party" of the human race; and these subjects, with truth, pride themselves that, under her crown, they enjoy a freedom far more secure, genuine and well-ordered than the liberty, so often degenerating into license, which is the lot of citizens of the new-fashioned money-ridden republics. Yet this very empire, to which the Imperial Institute has become a necessity, and of which it is so essentially representative, was, in its present character, actually non-existent fifty years ago. Our United Kingdom, busy as it was fifty years

ago, did not then enjoy, or, indeed, expect to enjoy, the "arts, manufactures and commerce of the Queen's Colonial and Indian Empire," which means for the mother country of today, as large an external business as she enjoyed with all the world fifty years ago. Perhaps actual figures afford the most graphic idea of what has grown up outside the United Kingdom :—

	1837. Millions.	1891. Millions.
Area governed.....sq. miles	1	21
Population.....number	100	374
State Revenues.....£	24	113
External trade.....£	102	443
Shipping.....tons	9	106
	236	1,047

These millions added together form a fair "index number" to mark the development which has taken place, plainly exhibiting a fivefold increase in all that this empire means to the mother country. Here have been found new and great markets for the absorption of precisely those commodities which are naturally produced in the mother country, and here have also been found great areas of supply of those very foods and raw materials which the dense, busy and growing population of the home islands have neither the land nor the leisure to produce. It is a fact that the British Empire has appropriated three out of the four areas within the temperate zones not hitherto occupied by civilized men. North America, South Africa and Australasia have fallen to the British, only South America remains for other colonizing races. In reclaiming for the uses of civilization these vast and fertile areas, the British race has opened out new opportunities and channels for the investment and creation of capital, the development of industries and commerce, and the employment of population both at home and abroad.

So gigantic and rapid a development of economic conditions—promising illimitable opportunities for in-

dustry and commerce, for the employment of money, manufactures and men—has not unnaturally created a proportionate sentiment of pride and far-reaching effect. The national sentiment is now centered on the Imperial ascendancy of the race, and through all classes the idea of a great united empire has taken such hold that even the barest suspicion of treason to that idea suffices to hurl from power the most influential statesmen. Of this, at the Institute reception on the 17th of May, there was a very notable but very regrettable example, when, with unprecedented force, and in contravention of all proper decorum, multitudes of well-to-do people could not and did not refrain from showing conclusively to all beholders that even the long service and exceptional reputation of a Prime Minister are nothing in the balance of public opinion when weighed against a supposed or asserted intention to promote the disintegration of the British Empire. Mr. Gladstone, on that memorable 17th of May, will have felt the pulse of twenty thousand representatives of the well-to-do and successful subjects from all parts of her Majesty's wide dominions. The idea of the unity of the race and of the integrity of its realms, at one time the ridiculed dream of theorists, at another the impracticable scheme of too ardent politicians, has become a first article in the avowed creed of every public man. At the last general election there was not a candidate but spoke and wrote of his absolute intention to uphold the unity of the Empire. Imperial federation is the catchword that has seized upon the popular favour, and its actual or technical meaning has been lost in the wider fact that the phrase is merely taken to represent the idea of the unity and integrity of our great empire.—*Sir George Baden Powell, M.P., in the Fortnightly Review for June*

NOTES FOR TEACHERS.

THE IMPERIAL INSTITUTE.—The Imperial Institute was opened in State, in London on May 10th, by her Majesty, the Queen-Empress. The weather was brilliant, and crowds assembled in the streets along which the procession passed, while stands containing seats for over 20,000 had been arranged opposite the building. The Indian Princes—H. H. the Raja of Kapurthala, H. H. the Maharaja of Bhownagger, and H. H. Sir Bhagwatsinghji, Thakore Saheb of Gondal—were warmly greeted, and the Colonial and Indian troops, which rode in front of the Queen's carriage, aroused much interest. Trumpets and drums announced Her Majesty's entry of the building; the National Anthem was slowly performed as the procession moved up the Hall; and at 12.30 the ceremony began. H. R. H. the Prince of Wales read an address, as President of the Imperial Institute, stating that the foundation stone had been laid in the fiftieth year of her Majesty's reign, and that, as a worthy memorial of that reign, it had been erected by contributions from all parts of the British Empire. The objects of the Institute were briefly indicated, viz: to illustrate the products and resources of the many countries composing the Empire, so that each land may understand and appreciate the capacities and wants of every other; to encourage friendly relations between all parts of the Queen's Dominions; to stimulate enterprise and commerce; and to increase scientific and technical knowledge. Her Majesty read, in a clear voice, the following reply: "It is with great pleasure that I am here to inaugurate this building, and to receive the address which you, my dear son, have presented to me on behalf of the Governing Body of the Imperial Institute. This has been erected by

your exertions and with the efforts of those around you, and with the aid of my people in every clime and country, as evidence of the unfailing loyalty of my subjects. I recognize this Institute as a fitting symbol of the unity of the Empire, and it would be a matter of profound satisfaction if this association of the many and diverse countries under my rule should be the means of knitting them more closely together. The Imperial Institute is intended to promote this great purpose, and I now declare it open, with an earnest prayer that it may never cease to flourish as a lasting emblem of the unity and loyalty of my Empire." A march was played by the orchestra, after which H. R. H. the Prince of Wales, by command of the Queen, declared the building to be open. A key was then presented to her Majesty, and by turning it in the lock of a table, the peal of bells in the tower (presented by an Australian lady) began to ring. After some further ceremonies the Queen left the Hall, stopping on her way to shake hands with the Indian Princes.

The Imperial Institute will contain large collections showing the arts of India and the Colonies, and it will form a meeting place for all who are interested in the mutual understanding and in the progress of the countries connected with the British Empire. Permanent and loan exhibitions will take place there, and probably, as years go on, the wonder will be how London can have ever got on without such a convenient institution—such a centre of intercourse and common interests. We trust that the Imperial Institute will prove valuable and helpful in promoting cosmopolitan prosperity and friendly relations between the different countries and the different continents of the world.

THE LIMITS OF CONFIDENTIAL RELATIONS WITH BOYS.—We shall probably agree that a master who admits, and even invites, the confidence of boys, may do a very great amount of useful work, and give help of sometimes untold value. If he is foolish or perverse in the way in which he sets about it, so he may be in other matters; we are taking his good sense for granted; and all the reserves and limitations which we are calling up are really only a measure of the degree in which every schoolmaster must have his thoughts and recollections filled with instances where fragile characters of boys have been indebted to the help of stronger and and friendly advisers.

But I cannot help thinking that there are two other dangers in the way of the confidential intercourse in question, both more subtle, but not less important than the others. One of them is the danger to the boy of being enfeebled and demoralized by his own act of confession. This is clearly possible; the most experienced of us can but make a guess as to the extent of its probability. The mere putting a thing into words, the mere communication of it to another, involves just a certain familiarization with it; and the more one can keep bad things out of the mind the better. An act of repentance ought, I should think, to be vivid and eager, not brooding. The best thing that we can do with our sins is to forget them. That one ought to reflect much on one's past offences, and ought to take careful pains to be on one's guard against them, are two common maxims of the pulpit; but they seem to me both wrong. However this may be, it can hardly be doubted that repeated disclosure of wrong-doing, habitual recurrence to the counsel of another, must—whether it has a good side or not—have the weak side of impairing the delicacy of conscience, and must

prevent the formation of self-confidence and firmness. It is so very easy for a boy to fancy that, when he has done wrong and confessed it, things are pretty much as they were before. Grant that he wants help; but is that help necessarily best given by one who completely knows all his frailty?

The other danger is from the point of view of the master; but it may be much more real to some people than to others, and to some may be hardly a danger at all. I have often thought that the craving for influence, especially for spiritual influence, is one of the chief "temptations," "snares," of our profession. Moral strength is like physical strength, a thing that we may be glad to possess, but we have no right to be always wanting to use it on weaker people. At any rate, it is possible that the wish to do so may betray us into situations in which we shall be thinking much of our own mastery and action, and less of the development of power and will in the other person. That virtue should triumph, ought to be every one's wish; but if a man mentally adds the intense desire that it should be under his own leadership and auspices, he is introducing a wrong note into the music. Possibly you may not feel conscious of this morbid element mixing with healthy energy, but I am sure some people must.—*The Journal of Education, Eng.*

LIQUID OXYGEN AND NITROGEN.

—Prof. Dewar has succeeded in producing, by means of vacuum and pressure, an almost inconceivable degree of cold. Measured by the Fahrenheit thermometer it is 360° below freezing, or 210° centigrade below zero. Oxygen can be liquefied at -1820 centigrade and nitrogen at -1920 . The effects of intense cold are marvelous. Liquid oxygen has strange magnetic and light-absorbing

qualities. It is so transparent to heat that, notwithstanding its intense cold, it acts as a lens. You may focus heat through it from one side and burn paper on the other. That, says Prof. Dewar, is what happens with the sun's rays on the earth, which are focused through infinite space. The vacuums produced by Prof. Dewar's apparatus are so nearly perfect that they contain gas of only one-millionth the density of common air. The temperature of infinite space, which is a perfect vacuum, the professor says, is— 274° centigrade. He hopes to reach a temperature of -2400 , when hydrogen will liquefy. Prof. Dewar produced liquefied ozone by acting on vapor given off from liquid oxygen by electricity. Its splendid dark blue color is almost as dark as indigo. The queer thing about liquid ozone is that when it goes back into gas again it explodes. It is stronger than dynamite as an explosive and this is simply because ozone goes back into the molecular form of oxygen so fast.—*The School Journal*.

DO WE TEACH TOO MUCH OR TOO LITTLE?—This is an intense age. Whatever we do good or bad, we are apt to overdo. The schools did little more than teach facts. "Knowledge is power." was the motto, therefore "get knowledge" was the teacher's cry, and children did get knowledge. But this came to be overdone. Not that children knew too much; they did not get power to use the knowledge they acquired. Then came the rebound,—with the motto, "In the acquisition of knowledge there is power." Now the conditions are changed, and "methods," "devices," "principles" of teaching come upon the throne and all bow before them, some reverently, some abjectly as a slave before his master. There are many evidences that this has gone as

far to the one extreme as the other theory and action went to the other and that *petrifaction* has only been supplemented by *putrefaction*.

Some of the tests made in these latter days show conclusively that there is little knowledge whatever virtue there may be in the "methods." Virtue lies not in any extreme, nor in any one mean, but in having the means equal the extremes. As $2:4::4:8$ and though the one extreme is small and the other large and neither mean is either large or small, the product is the same whether you multiply the means or the extremes. The proportion should be,—Power: Knowledge: : Method: Power and then the balance will be preserved between method and knowledge. No method is of service except as it is employed in acquiring knowledge, and a method that carries the most knowledge to the mind the most easily and retains it there longest, is that which is worth the most. There is no test of a method that is of value except that which tests the knowledge it conveys and retains. A method can never be judged by what it is doing but by what it has done. Woe to the man who purchases a horse because he dances and prances in a dooryard before he starts out for a journey. Happy the man who waits until the horse leaves forty miles behind him and then paws the ground for a fresh start. Woe to the school board, principal, or superintendent who selects a teacher only when they can "see her teach" and then estimates her by the tact and flippancy with which she shows off a method that she has shown off twenty times before. Happy the man who tests her by the work she did last year by the knowledge and power to acquire and retain knowledge after having had a year with her. There must be more and better knowledge and it must be longer retained, and the only

test of a method is the ability it gives to learn and retain the most and the best knowledge.—*Journal of Education (Boston.)*

NORMAL SCHOOL VS. HIGH SCHOOL METHODS.—There is a difference in method between the normal school and the secondary school. I think that it is well to draw attention to this difference, inasmuch as it explains both the great value of the normal school, and also the cause of a class of defects which some of the normal pupils fall into at the beginning of their career. The normal school pupil is, on an average, two years older than the pupil of the secondary school. The method of the normal school instruction is what may be called the comparative method. It attempts to study each branch of the common school course of study in the light of the other branches. Especially does it look after the derivation of one branch from another. It studies arithmetic in the light of algebra, showing how the several rules are statements in words of the algebraic formulas in which the progress is demonstrated in a universal manner. In geography, for another example, the causes of the configuration of countries is sought in geology. Mineralogy and meteorology are brought in to explain such things as erosions of rivers and peculiarities of climates. All means at the command of the teacher are brought into requisition to give the normal pupil an idea of the genesis of a given branch of study. We may also call this the constructive method: for the pupil is taught how to construct a text-book in a given subject. But this great advantage which the normal method has over the secondary—which cannot work along comparative lines—cannot compare and derive branches, one from another, because it does not yet possess them

in any form, and consequently cannot begin to reflect about them. It happens sometimes that the best pupils of the normal school make the mistake of trying to use the method, which they have learned in the normal school, in their teaching in the elementary school. Dana P. Colburn tried to introduce that method into elementary instruction, and have little boys and girls deduce the rules of arithmetic algebraically. Guyot* tried to make a primary geography on the constructive principle and deduce geography from geology. It is a mistake to suppose that the normal method can be used in any other school, unless the maturity of the pupils has developed the epoch of reflection. Not the elementary school, nor even the secondary school, can use the comparative method except sparingly. But all the normal schools that I have seen, north, south, east, and west, seem to have adopted the comparative or constructive method as the only proper thing to do, quite independent of one another. I suppose that they felt that just the knowledge which the teacher most needs is this one of derivation of the systematic arrangement of the matter to be learned in a text-book, from the higher sciences which show causes and processes.—*Dr. Wm. T. Harris in the Public School Journal.*

THE NEWSPAPER.—At the meeting of the Ontario Teachers' Association held in the Normal School this week, the chairman of the Public School Department read a paper in which he advocated the use of newspapers in schools as a means of education. This is not entirely a new idea, as the scheme has been tried, and in fact is still being used in some of the higher institutions of the United States. There is no doubt that our school system deals too much with abstrac-

tions and does not go as straight to the point as it should. A course in history begins with the creation of the world, comes up through the twelve tribes and Nebuchadnezzar, and the Medes and Persians, and Greece and Rome, and the Goths and Vandals and Danes, Saxons, and Normans, and has to do with dynasties and involves the learning of the names of kings and a familiarity with genealogical trees, and yet there is little which informs the mind of the pupil with regard to the great struggle for liberty which has been the motive power in modern times as conquest was the central idea amongst the ancients. Children are taught dates and made to learn about battles, though why they were fought or the inner history of those who led the legions is necessarily left out because there is not time to attend to the ambitions either of a monarch or a people in the rapid chase through six thousand years.—“*Don*” in *Saturday Night*.

NOTES FROM A LECTURE DELIVERED BY DR. D. A. MAYO.—

“The art of teaching is a grand art. Agassiz, when dying, bade them put upon his gravestone only this: ‘Louis Agassiz, Teacher;’ though his reputation as a scientist and original investigator was world-wide.”

Speaking of the value of educational literature, Dr. Mayo said the teacher should secure three things for his pupils; first, well trained powers of observation; second, a knowledge of the proper use of books; third, facility and rapidity in reading.

“The leaders of the New Education did not go to the philosophers to learn the natural methods of instruction, but to the mother.”

“Pestalozzi did not formulate theories about the training of children, but he observed a mother’s manner of training.

“Pestalozzi’s fundamental ideas were: First, that a school is not a place set apart from the rest of the world and its affairs, and given over into the hands of an infallible class, but education in school is simply one phase of life, and what is good in other things is good in education; the same principles are everywhere. Second, that the mother’s method of instruction is the natural method of instruction.”

“The secret of the discipline of the school is to keep the children busy.”

“Teaching should not instruct for the present alone, but should contain food for future growth.”

“A book in which is written all that is said in the Bible concerning children would be most valuable to a teacher.”

“Use the Bible as the most valuable hand-book in the method of teaching children. Learn how Jesus taught.”

“Professional reading keeps the teacher in contact with the work done in the profession. Among no class of workers is there so little opportunity of seeing the work of others in the same profession. Keep out of the ruts.”

“Reading that does good is suggestive. Read what is of vivid interest to you; follow out a suggestion with a view in the end to general improvement. No food helps the body but that which is agreeable to the taste and has been digested.”

“Read for inspiration, for life and information. Keep in the higher rank of literature.”

“We are shaped more by the talk going on around us, than by any other influence. For every idle word man shall give an account in the day of judgment.”

“Read the Bible, not only as it is usually read for spiritual instruction, but for the use it can be to the teacher as a teacher. Study it with

the idea that it is the only universal classic of Christendom, and is destined to have that place over the entire world."

"Observe the style in which the Bible is written, its simplicity, condensation, and truthfulness; wrongdoing is not shielded but called by its right name. The Bible is the fountain head of poetry, and contains some of the finest examples of all literature. Art is inspired by the Bible. Notice its wonderful portraiture of character by a few masterly strokes." *The School Journal.*

WHAT IS ELECTRICITY?—As far as understood now, electricity is simply motion of the molecules of the different substances which are the subjects of electrical action, just as heat, light, and sound are, and the only difference between these forces is the rate of the motion. The motion of sound, as we all know, is comparatively slow; that of heat and light are very rapid. That of electricity would appear to be somewhat between the slow motion of sound and the rapid motion of those heat-waves whose motion is slowest.—*The School Journal.*

I NEVER WAS HAPPIER.—The results of true teaching are so visible to many that they constitute the incentives to remain in scantily paid fields. Every day the pupil is seen to be further along in the nobler path, rising higher and acting more wisely. An ex-judge who had sat in most of the positions of honor accorded by the state of New York, remarked at a gathering of his college classmates, "I never was happier than when I was teaching a country school at eighteen dollars per month. My pupils worshipped me and did just what I asked them; the people held me in such esteem they would have made me president if they could. I felt then I was a powerful influence

for good; and I look back and see that I was. I have never been in a place where my desire to benefit others was so unobstructed."—*The School Journal.*

WORK IT OUT FOR YOURSELF.—For, the fact is that no one can tell you how to deal, either with bad boys or with bad boys' mothers. The evolution of the one and the involution of the other are things that you must work out for yourself. You may get a hint here and there, but it must all fall back upon you at last. And, more than that, you can never hit upon any patent plan that will settle all cases of this kind for all time and in the same way. In this, as in all else, the old man's words are true, when he says: "Now understand me well, there is no fruition of success, no matter how great, but that, out of it, something shall arise to make a still greater struggle necessary!" That may not be a very restful sentence for a lazy soul, but it is true, and especially so in dealing with the evolution of bad boys and the involution of their mothers.—*Public School Journal.*

THE PROFESSION.—People are paying dearly to discover that lawyers, physicians, business men, and politicians are not qualified to determine the fitness of teachers. They are not yet willing to recognize teaching as a profession. They have a vague idea that the duties of those who are to educate their children merely requires ordinary scholarship. And it must be admitted that very many teachers have nothing else. A reform will not set in until the teacher has something beside ordinary scholarship and the people demand it.—*The School Journal.*

I am what I am because I have been doing what I have been doing.

PUBLIC OPINION.

INTELLIGENCE.—The great trouble is, says President Eliot, that our popular education is not really conducted in such a way as to develop intelligence. It teaches children to read (after a fashion), to spell, to write and to cipher ; it also imparts a little knowledge of geography ; but none of these things, as commonly taught, calls into activity in any adequate manner those powers on the due exercise of which the growth of intelligence depends—the power of observing facts, the power of accurately and faithfully recording facts, the power of reasoning correctly in regard to facts. Nor is any sufficient practice given in the important art of composition or correct expression in writing.

To give a proper training in the observation of facts some branch of natural science or some kind of handicraft should be taught. At present whatever quickness of observation children acquire is acquired in connection with their sports ; and their school studies lack vitality and effect simply because the element of original observation has no part in them. To make an observation of one's own in regard to any matter is to gain at once an interest in that matter, and in all probability to prepare the way for other observations. While we agree with President Eliot that some branch of natural science, or some "well-conducted work with tools or machines," furnishes the best means of developing the observing faculty, we also agree with him in holding that almost any line of study may, in the hands of a competent teacher, be turned to good account for the same purpose. As he rightly observes, one teacher will get better results out of one subject and another out of another. Geography, which, "as commonly taught, means

committing to memory a mass of curiously uninteresting and unimportant facts," may, under proper treatment, become a most stimulating study ; but, in order that this may be the case, a teacher is required who has a vivid apprehension of the relation of geographical facts to one another, and a clear conception of the general relation of physical to political geography. So with language : it may be made a mere thing of arbitrary rules or it may be exhibited in its vital connection with thought, and its structure and etymology made to yield abundant exercise both for the observing and the analytical faculties.

In the recording of facts opportunity is given both for the cultivation of accuracy of statement and for the acquisition of correct modes of expression. We do not, indeed, see how first lessons in composition could be given with greater advantage than in connection with the statement of facts observed by the pupil. Every fact is observed under some conditions of place, time, etc., and, in the due setting forth of these, various adverbial and other elements of a well-developed sentence come into requisition. There is no point at which the inefficiency of our higher schools has been more apparent, or has given rise to severer criticism, than in the matter of composition ; and the reproach will remain until the problem of its removal is approached in a scientific spirit and by scientific methods. Language is the garb of thought, not a substitute for thought, nor a thing to be acquired and possessed independently of thought. He alone can use language with freedom, certainty and accuracy who is conscious of needing for the expression of his thought all the words and phrases that he employs. First

catch your thought and then array it suitably. A lesson in language should therefore always be a lesson in thinking; and words, instead of appearing, as they so often do in language lessons as meaningless superfluities, should be exhibited as essential for that communication of our thoughts on which the whole of our rational and social life depends. Language lessons in the earlier stages should always turn upon such words, phrases and narratives as actually relate to the daily life of the child. Thought should be stimulated until the need for language to express it is felt, and language should never be presented for use or imitation beyond the limits of such consciousness of need. The more the different lessons which the child receives can be brought into relation with each other, the better it will be.—*Popular Science Monthly for February.*

THE ONLY PRESCRIPTION.—The strikes in the West show that wild notions of inaugurating a better state of things on earth by force are entertained. There are large numbers of people that gather in "unions" and hear harangues on "labour" "capitalists." etc., and, being unable to separate the true from the false, come to believe that blessedness may come without righteousness. One wing of this class are socialists, they desire everything to be done by the state; they cry, "Down with churches and priests." The other wing have great hopes of legislation—believing that if railroads, telegraphs, etc., were run by the government no trouble would ensue. The real cure (as far as there may be one) was pointed out 1800 years ago; few believed in it then, but as time has gone by an increasing number see that "Learn of Me" is the only prescription known for the troubles of humanity.—*School Journal.*

PETTY CRITICISM.—"Instructors are not perhaps aware how much the art of composition is kept from being developed in children by petty criticism. Children have a great deal to contend with in the attempt to express their thoughts. In the first place, they find it more difficult than better trained minds do, to preserve their thoughts in their memory. For the mechanical labor of holding the pen, of seeing the spelling, of pointing, and all such details interfere with the purely mental effort, and when all this is mastered, and they express original thought, it is like putting forth a part of themselves; and they are intensely alive to its reception, in proportion to its real originality; and if it is misunderstood, or its *garb criticised*, they shrink more than they would at a rude physical touch, and will be very much tempted to suppress their own thoughts, on another occasion, and only attempt the commonplaces, for which they have heard expressions."—*Miss E. P. Peabody.*

BY THE LIGHT OF THE EYE.—Helmholtz has shown that the fundi of the eyes are themselves luminous, and he was able to see, in total darkness, the movement of his arm by the light of his own eyes. This is one of the most remarkable experiments recorded in the history of science, and probably only a few men could satisfactorily repeat it, for it is very likely that the luminosity of the eyes is associated with uncommon activity of the brain and great imaginative power. It is fluorescence of brain action, as it were.—*Electricity.*

THE VIRTUES WE DEPRECIATE.—There are few things more difficult and more rare than to appreciate and admire those virtues in which we are ourselves particularly deficient. This is specially manifest in the case of

different nationalities. Separated as they are by distance, differing in climate and natural conditions, their people having opposite hereditary influences and present surroundings, the virtues for which they are conspicuous differ as widely as the causes which produce them.—*Philadelphia Ledger.*

OBSERVATIONS.—Professor Sully (East Heath Road, Hampstead, London, Eng.,) is appealing to parents and teachers of young children to supply him with facts bearing on the characteristic of the child's mind, and will, on application, gladly supply a table that he has drawn up, giving the heads under which observations may be classified. Preyer, Taine, and Dr. F. Champneys have furnished us with most valuable records of individual children, but we need a far wider range of observations before we can arrive at any safe generalizations. As in the case of Dr. Murray's English Dictionary, it is only by enlisting the services of a large number of voluntary collaborators that any scientific results can be achieved.—*The Journal of Education.*

PRACTICAL EDUCATION —The Public Schools closed yesterday for a seven weeks' holiday. No doubt, from the large number of studies forced upon pupils nowadays, that the weary mind needs a long rest. It is a very general opinion that there are too many subjects taught, for the children should learn that which will be most necessary for them when they grow older. One defect in our school system is the attempt to cover too much ground in the youthful mind. Better the mastery of a few branches than a smattering of higher studies. The tendency of our school system is to turn out pupils all of the same size and capacity as to mental calibre. The ideal education would be to

polish up the individual jewels of each scholar, and enable him to develop the originality within him. Of course, this ideal is hard of attainment, unless each scholar is taken in hand by the teacher; but the brightest men in after-life are those who follow original paths.—*London Free Press.*

THESE THREE THINGS.—Not all the addresses to graduates have a hopeful tone. Rev. Dr. Patton said to the graduating class of Princeton university: "The danger to this nation is not immigration, or the export of gold, or wrong ideas of the tariff, or state socialism. Our danger is that we are losing sight of the great heritage of the Puritans—faith in manhood, allegiance to conscience, belief in God." He is right. The aim of all teachers must be to teach these three things, no matter what else is demanded in the course of study. There are lots of people who will say in the addresses this summer, "We have sixty millions; behold our greatness." Can we say each year there is more faith in manhood (not in money), a stronger allegiance to conscience, and a firmer trust in God? That is real greatness.—*The School Journal, N. Y.*

READING.—Lord Coleridge's classification of authors, as given in his address at the Salt Schools, Saltaire, is not likely to be approved by other great readers. The order is his own. He did, however, tell his hearers that, in selecting passages, in verse or prose, for the memory, the safest rule was to learn that which pleased their taste. Leaving out Greek and Latin authors, he would put Shakespeare above anyone else, next Milton, and then for daily use let them read Wordsworth. Afterwards came Grey, Shelley, Keats, Scott, Ben Jonson, Massinger, Pope, Dryden, and Young. Coleridge he, of course, omitted; and Tennyson

he omitted because any estimate which placed him below Shakespeare, was the mark of a Philistine. Browning he had not been so fortunate as always to understand. At the head of prose writers he placed Lord Bolingbroke, and very near him Lord Erskine; then followed Burke, Bacon, Bishop Hooker, Jeremy Taylor, Sir Thomas Browne, Cardinal Newman, Nathaniel Hawthorne, and Southey. The list was short, but was sufficient

to occupy a very long time to master thoroughly. He could not too earnestly recommend their acquainting themselves with good books; in sickness, misfortune, or sorrow, in sleepless nights and painful days, they would find their recollection of wholesome literature a constant solace and refreshment.—*Educational Times*.

Everyone owes it to himself to grow.

GEOGRAPHY.

“HOW FAR IS IT TO SHATEGEE?”—The well-coached children told the admiring listeners many things about Africa and the moon, and the sun, etc., etc. After displaying the erudition of his flock the beaming pedagogue blandly invited his visitors to ask questions. He was about to be gratified by a general declination when a sinewy, firm-lipped old farmer availed himself of the invitation. He snapped out, “How far is it to Shategee?” (Chateaguay, a village in that county.) The erudite children were silent. Again came the savage query: “How far is it to New York, and how can I get there?” The valuable cherubs again gave no sign. “Well,” said the sturdy son of toil, “that’s all I want to know. I have my opinion of this school. They tell me how far it is to the moon, and what may be seen in Africa. Now I never expect to go to the sun, nor to the moon, nor to Africa. But I am very likely to have to go to Shategee or to New York and they can’t tell me anything about it.” The old man was not acquainted with books, but he was nevertheless a philosopher; he could detect a sham when he saw it, and he knew how to puncture a bubble. Yes, a voice from

the lay public, from those who are waiting to use the boys and girls, should be heard in every examination.—*John Kennedy in the Educational Gazette*.

TELEGRAPH IN AFRICA.—A telegraph line is to be built from the Cape to Cairo. Capital has been subscribed to the extent of £140,000, which is considered sufficient to carry the line as far as Uganda. The materials are now being ordered in London, and will be shipped shortly. The poles are to be of iron of light construction, in order to outmanœuvre the white ants, who would eat away wooden poles. From Fort Salisbury the line is to be carried to Tete, on the Zambesi, and from thence to Blantyre. There Consul Johnston will report the result of his surveys as to the best manner of proceeding on to Uganda, and the construction party will have to come to terms with the natives and Arabs by subsidizing the chiefs and others of influence. There will be nothing in the way of impenetrable undergrowths or rank vegetation to contend with, as the line will avoid the low country and keep to the high plateau the entire distance. There

are two alternative routes for the conveyance of the materials. There is good transport from the Transvaal to Fort Salisbury, or a shorter route would be adopted if materials were shipped direct to Beira, carried along the railway now being built as far as it extends, and then conveyed the rest of the distance by ox-wagons. The scheme is being pushed forward with great activity now.—*Pall Mall Gazette*.

RAINDROPS.—How large is a drop of rain? Probably most people have a notion that raindrops are nearly all of one size, although it is a matter of common observation that in what is called a misty rain, or a drizzle, the individual drops are very small. The question of the size of raindrops is not so unimportant as might be supposed, and Mr. E. J. Lowe has collected many facts bearing upon it, and presented them to the Royal Meteorological Society. He employed in his experiments sheets of slate made in book-form so as to be readily closed, and ruled in inch squares. The impressions of the drops were caught on the slate, and afterwards carefully copied on paper. He discovered that the size of raindrops varies from a speck so small as to be almost invisible up to a diameter of two inches. Every reader has probably noticed that the raindrops preceding a thunder-storm frequently assume gigantic proportions, though he may not have suspected that they could ever attain so great a size as Mr. Lowe has discovered that they do. Other interesting facts about raindrops which have been brought out by Mr. Lowe's experiments are that drops of the same size do not always contain the same amount of water, and that some of the largest drops are hollow. The importance of these observations from a scientific point of view lies in the bearing of the facts thus ascertained

upon the question of the manner of precipitation of the aqueous vapor of the atmosphere. From another point of view they are important as illustrating nature's power to introduce variety into her works, even when her hand is busied merely in forming drops of rain.—*Goldthwaite's Geographical Magazine*.

THE DEFLECTION.—That the earth's motion has an appreciable effect upon artillery fire, deflecting the projectile from a straight course, may be news to many, and as such would probably seem a novel notion. It has, and the exact nature and extent of the effect is an important point of study with artillery experts. An English army expert told of the results of many interesting experiments along this line in a paper read before the Royal Artillery Institution the other day. Firing from north to south there is a divergence of projectiles to the left due to the earth's rotation, and firing due north the divergence is to the right. The extent of the "pull" varies at different points on the earth's surface, and with projectiles fired at different speeds and elevations. In England a deflection of five inches is found to occur with the projectile of a twelve-pounder in a 4,000 yard range.—*New York Sun*.

ICE BREAKING.—There have been divided opinions about the expediency of using dynamite for ice-breaking, and it has never been used for this purpose to any extent. Practical experiments last winter at the Hango Harbor, in Finland, seem, however, to have given very satisfactory results. The powerful ice-breaker of the port was helpless in the face of a belt of some 1,200 feet of very thick ice, the thickness of which was measured to be as much as eighteen feet. It would seem essential for successful ice-breaking with dynamite, that there

should be sufficient room to dispose of the broken ice, for if this is allowed to remain broken in the channel it will still interfere with the progress of steamers. The cost of the dynamite ice-breaking at Hango amounted to about fifty pounds.—*London Engineering.*

THE MOST VALUABLE EGG—The Smithsonian Institution possesses the most valuable egg in the world. It is an egg of the great auk, which became extinct about fifty years ago. The value of it is nominally \$1,000, but it could not be purchased for that sum. Few people realize that there are other eggs besides those of hens which have enormous commercial value. In England so-called "plovers' eggs," which are really

those of lapwings, are sent to the city markets from the rural districts by hundreds of thousands. They are esteemed a great delicacy, commanding very high prices from the aristocracy.—*Goldthwaite's Geographical Magazine.*

EARTHQUAKES.—It is noted that upwards of sixty per cent. of the earthquakes that have been recorded have occurred during the six colder months of the year—the maximum number in January and the minimum in July.—*The Mediterranean Naturalist.*

LONDON contains one-eighth of Great Britain's population. It has a larger daily delivery of letters than all Scotland.

EDITORIAL NOTES.

We have no desire to be unfair or unreasonable in our remarks as regards the examination papers set for the University matriculation and departmental examinations 1893. In fact, we have refrained for a few years past from making any allusion to the character of these examinations for two main reasons. Because (1) the University Senate of Toronto and the Education Department were engaged in making an experiment; and (2) we desired on our part to give the Joint Committee appointed by these two authorities, time to show the results of their joint action.

The experiment undertaken by the Committee is the attempt by the same examination to secure recognition for two distinct classes of persons: (1) the matriculant who perhaps may never teach, and (2) the teacher who, on the other hand, may never see a University or College.

The object is laudable, the attempt is praiseworthy, it has cheapness to recommend it, and we hope the commendation in its favour may turn out an exception to the general rule.

Without expressing an opinion as to the feasibility of the problem—to kill two birds with one stone, we hope we may say a word or two, without giving offence to any of our friends, as to the character of the papers set for the present year.

We know when the Joint Committee was appointed by the University Senate and the Education Department that the expectation was very general that the Committee and its appointees, the examiners, would take proper care, so that educators would have little, if any, difficulty in defending the examination papers to their pupils and to the general public.

We have to confess that this reasonable expectation has not been realized.

Generally speaking the papers strike us as heavy and pretentious. There are exceptions this year, as in other years. Somehow a look at the papers discourages a candidate. Heavy in their composition, not neat, questions, inviting an attack from an ardent student, but ponderous in length, in multitude of words, complex, and intricate.

The other element we notice in the questions is pretentiousness. Apparently the examiner is afraid lest the candidate has read more than he has, or has been coached by the crammer to such a pitch that he (the candidate) will sweep the paper. The presence of this feature in the papers set, may arise from an undue fear, on the part of the examiner, of the unthinking public. Whatever may be the true explanation, we regret these defects year after year in the examination papers.

What can be the cause of this crudeness in our examination papers? Looking from an outside view, as we are now doing, we would say: Want of united action. Surely, if the three gentlemen, whose names appear on each paper, consulted each other, and each revised the work of the other, and even a second revision in case of doubt, we would be spared the unpleasant feeling of reading ill prepared question papers. Must we attribute the lack of an artistic hand and good sense in our papers to specialization, priggishness or individualism. Is it lack of money? If so, the statement, "penny wise, pound foolish," was never more completely verified. By whatever means secured, we must have more suitable examination papers from the "Joint Committee."

The nations of the earth want information about Canada. The people living in this part of the British Empire have a special duty laid upon them, to tell out to all peoples what a

place is Canada: its extent from ocean to ocean, and from the great lakes to the north pole—a territory measured only by thousands of miles, whether you take it from east to west, or from south to north. Make known to all peoples the fertility of our broad Dominion, its unequalled riches in fish, wood and minerals, its healthful variety of climate, that Canada is, perhaps, without exception, the healthiest country in the world.

As a contribution to this much neglected work, which Canadians owe to their country and to themselves, we welcome with pleasure Mr. J. C. Hamilton's timely volume on the Georgian Bay and its vicinity.

We very specially commend the work to teachers, to all teachers, but more particularly to those of the profession who have the care of teaching History and Geography. In this volume they will find much useful and interesting information, not got elsewhere except at the cost of much time and labour. On behalf of the teachers we thank Mr. Hamilton for his interesting and helpful book.

In this number of the Magazine, our readers will be pleased to find an able and interesting article by our kind friend Mr. C. Octave Macdonald, London, England, upon the "Economic Features of Canada." The progress of Canada has been much retarded in the past because the other parts of the Empire were not aware of the noble heritage British people have in North America: a brighter and better day is now at hand. Knowledge is increasing, and the home land will rejoice in the prosperity of her daughter on the American Continent.

Study is like the heaven's glorious sun
That will not be deep search'd with
saucy looks.

—*Love's Labour's Lost*, i. i.

SCHOOL WORK.

CLASS ROOM.

ANNUAL EXAMINATIONS, 1893, HIGH SCHOOL ENTRANCE.

ARITHMETIC.

Examiners, J. S. Deacon, John Seath, B.A.

NOTE.—Candidates are to take the last question and any six others. Of the marks for the second question, 6 shall be given for correctness of form. NO VALUE SHALL BE GIVEN for the last question unless the result is ABSOLUTELY CORRECT.

1. A farmer exchanges $3\frac{3}{8}$ tons of wheat at $64\frac{1}{2}$ c. a bushel for coal at \$6.75 per ton. How many lbs. of coal does he get? (15)

2. Nathan Curd sells you 752 lbs. of cheese at 11 $\frac{3}{4}$ c. per lb. and receives the following goods: (Make out the account in your own name with place and date of this examination.)

11 yds. Silk @ \$2.25.
400 lbs. Sugar @ 4 $\frac{7}{8}$ c.
12 " Raisins @ 11c.
96 " Nails @ 3 $\frac{3}{8}$ c.
56 yds. Grey Cotton @ 9 $\frac{3}{8}$ c.
11 " White Cotton @ 10c.
3 prs. Gloves @ 75. (15)

3. A school room is 30 ft. long, 24 ft. wide, and 10 ft. high above the wainscoting. The trustees pay \$20 per thousand for a new floor; \$15 per thousand for a new board ceiling; 10 cents per sq. yd. for painting the ceiling; 4 cent's per sq. yd. for tinting the walls, and \$2 per day for 6 days' labor. Find total cost. (15)

4. To drain a swamp in Dereham, the Township Council had a ditch dug one mile long, 3 feet deep, 6 feet wide at the surface and 4 feet wide at the bottom. Find total cost at 9 cents per cubic yd. (15)

5. How many miles must be travelled by a team in ploughing lengthwise a piece of land 60 rods long and 40 rods wide, if each furrow is 10 inches wide? (15)

6. Bought a horse for \$160, and gave in payment my note dated August 15th, 1892, with interest at 7 $\frac{1}{2}$ per cent. per annum

until paid. On Jan. 8th, 1893, I sold the horse for \$200 cash, and paid my note. What was my net gain? (15)

7. A grocer receives \$9.60 for a bill of goods weighed on scales that gave only 15 $\frac{1}{4}$ ounces to the lb. How many cents' worth did he cheat his customer? (15)

8. The outfit of a livery stable is worth \$3,000. One-seventh the value of the horses is equal to one-fifth the value of vehicles, harness, &c. Find the value of the horses, (15)

9. Write the following in figures:—

(a) Fifty thousand nine hundred and nine.

(b) Nine hundred thousand and ninety.

(c) Six hundred and fifty thousand, seven hundred.

(d) Eight hundred and seven thousand and eight.

(e) Seven hundred and seventy thousand and sixty-seven.

(f) Nine millions, ninety thousand and ninety-nine.

(g) Eighty millions, nine hundred thousand and thirty.

(h) Nine hundred and seventy millions, eight hundred and eighty-seven thousand.

(i) Six hundred and seventeen millions and ninety-three.

(j) Nine hundred and nineteen thousand, four hundred and eleven.

ENGLISH GRAMMAR.

NOTE.—Candidates will take questions 1, 2, 3, 4, and either 5 or 6.

1. Classify fully and give the relation of each of the italicized words in the following:

At Aerschot, up *leaped* of a sudden the sun,
And *against* him the cattle stood *black* every
one,

To *stare* through the mist at us *galloping*
past;

And I saw my stout galloper, Roland, at
last,

With resolute shoulders, *each* butting away.

The haze, as some bluff river-headland its spray. ($2 \times 12 = 24$)

2. Analyse fully each of the following sentences and parse the italicized words :

(a) Venetian, fair-featured, and slender,
He lies *shot* to death in his youth,
With a smile on his lips, *over* tender.
For any mere soldier's dead mouth.

(a) Van Renssalaer, the U. S. general, *had gathered* at Lewiston a force of *six thousand* men for the invasion of Canada, *having* previously *taken* all the necessary steps to *prevent* any failure of his plans. Analysis, 7 + 7, Parsing, ($2 \times 8 = 16$)

3. Write out in full, and give the kind and the relation of each of the subordinate clauses in the following :

(a) Then I remembered how I went
In Joppa, through the public street
One morn when the Sirocco spent
Its storms of dust with burning heat.

(b) How often, when the windows are opened in the morning, you find the air in your bed-room has become unwholesomely close and foul !

(c) This little book is intended to lead up to the High School History, just as the High School History, which has already been published, leads up to Green's Short History of the English People. ($3 \times 6 = 18$)

4. Give the kind and the relation of each of the italicized phrases in the following sentences, and then express each phrase as a clause :

(a) *On gaining the lake*, the deer stood still.

(b) *Pointing to an open space in front*, he said we should camp there.

(c) No house, *with bad plumbing*, can be healthy.

(d) *Roused by scenting my opponent*, the deer left the vicinity of the lake. ($3 \times 4 = 12$)

5. (a) Give and name the other principal parts of *lay*, *let*, *flew*, *swim*. (5)

(b) Give the progressive past and simple pluperfect indicative, in all the persons, of *lie* and *pay*. (6)

(c) Give the other degrees of comparison of the following, and, if any cannot be compared, explain why : *next*, *instantly*, *quickly*, *striking*. (5)

6. Correct, where necessary, the following, giving reasons for any changes you may make :

(a) Owing to the continual bad weather of last winter, there has been many colds caught.

(b) I do wish them boys would fasten the door strong and good and then sit quiet.

(c) Will I tell him you want him if he see me ?

(d) If you'd have ran all the way, you'd have seen him, sure, before he went. ($4 \times 4 = 16$)

GEOGRAPHY.

Examiners : { ISAAC DAY, PH.B.
JOHN SEETH, B.A.

1. Define each of the following :—bay, watershed, canal, strait, desert, archipelago, channel, isthmus, peninsula, and cape. Give one example of each, and tell its exact position. ($10 + 5 = 15$)

2. (a) Describe the trans-continental route of the Canadian Pacific Railway.

(b) What communication has recently been established between this railway and the Eastern Hemisphere, and of what commercial advantage will this be to Canada ? ($5 + 7 = 12$)

3. Compare the Dominion of Canada with the United States as to shape, mountains, climate, and products. ($4 \times 3 = 12$)

4. Sketch a map of Southern Europe, showing the position of Portugal, Spain, France, Sicily, Italy, and Turkey. (12)

5. (a) Why do the people south of the equator have summer while we have winter ?

(b) Why do the days become warmer as they grow longer ?

(c) When are the days in the northern hemisphere the longest ? ($5 + 5 + 2 = 12$)

6. Name and locate as many as you can of the different regions comprising the British Empire ? Which are the more important regions ? Why ? ($5 + 2 + 5 = 12$)

HISTORY.

NOTE.—Candidates will take any FOUR questions in British History and any TWO in Canadian.

I.

BRITISH HISTORY.

1. What caused the "Wars of the Roses"?

Give an outline of their history, naming and locating the principal battle fields and explaining the results of the wars. (4+8)

2. What led to the conflict between the Crown and the Parliament, which began in the reign of James I? Give as full an account as you can of the results. (6+6)

3. Sketch the history of Walpole's administration. (12)

4. Name and give an account of three of the most important reforms since the reign of George III, explaining the importance of each. (4×3=12)

5. Write as fully as you can on any three of the following, explaining the interest England had in each of them :

- The Eastern Question.
- The American Civil War.
- The Seven Years' War.
- The Crusaders. (4×3=12)

6. Give as full an account as you can of any three of the following :

- William Pitt, the Elder.
- Gladstone.
- Marlborough.
- Simon de Montford.
- Tennyson.
- Milton. (4×3=12)

II.

CANADIAN HISTORY.

1. Sketch the early settlement of Canada under the following heads :

- Jacques Cartier.
- Champlain.

The Company of One Hundred Associates. (4+6+4)

2. State the cause and the results of the Canadian rebellions. 6+8)

3. Write full notes on any four of the most important events in Canadian History since Confederation, explaining why each is important. (14)

ALGEBRA.

Solutions by S. A. MITCHELL Queen's Col.

(Continued.)

4. Find a rationalizing factor for $\sqrt{a + \sqrt{b + \sqrt{c}}}$, where the surds are dissimilar ; and show that it can be put under the form

$$E \sqrt{(a-b-c) \sqrt{a} + 2\sqrt{abc}}$$

where E denotes the sum of the three symmetrical expressions of which the one in $\{ \}$ is the type.

$$4. (\sqrt{a + \sqrt{b + \sqrt{c}}} (\sqrt{a + \sqrt{b - \sqrt{c}}}) = a + b - c + 2\sqrt{ab} \text{ and } (a + b - c + 2\sqrt{ab}) (a + b - c - 2\sqrt{ab}) = (a + b - c)^2 - 4ab, \text{ which is rational}$$

$\therefore (\sqrt{a + \sqrt{b - \sqrt{c}}}) (a + b - c - 2\sqrt{ab})$ is the Multiplier required.

Upon multiplying out this gives $\sqrt{a} (a + b - c) + \sqrt{b} (b - c - a) + \sqrt{c} (c - a - b) + 2\sqrt{abc}$ or $\sum \sqrt{a} (a - b - c) + 2\sqrt{abc}$.

5. (a) Prove that the least value of the function $ax^2 + bx + c$, with x variable, is got by putting for x one-half the sum of the roots of the equation $ax^2 + bx + c = 0$.

(b) Find the quantity which exceeds the square of its third part by the greatest quantity possible ; and find the excess.

$$5. (a). \text{ Let } ax^2 + bx + c = y \\ \text{Then } x = \frac{-b + \sqrt{b^2 + 4ay - 4ac}}{2a}$$

This expression for x will be real as long as the quantity under the surd is positive, *i.e.* so long as $4ay - (4ac - b^2)$ is positive. The least value of x is then, when the surd

becomes zero, and in this case $x = -\frac{b}{2a}$. But this is one half the sum of the roots with its sign changed.

(b). Let x denote the quantity.

Then $x - (\frac{1}{3}x)^2 =$ as great as possible.

\therefore Put $(\frac{1}{3}x)^2 - x = 0$ and half the sum of the roots with sign changes is $\frac{2}{3}$ or $4\frac{2}{3}$.

$\therefore 4\frac{2}{3}$ is the quantity.

and $\frac{2}{3} - (\frac{1}{3} \cdot \frac{2}{3})^2 = \frac{2}{3} = 2\frac{2}{3}$ is the excess.

6. (a) When $lb_1 + mb_2 + nb_3 = lc_1 + mc_2 + nc_3 = 0$, find three expressions in $b_1, c_1, \&c.$, which shall have to one another the ratios $l : m : n$.

(b) Solve the set.

$$\frac{1}{x} \left(\frac{3}{z} - \frac{4}{y} + \frac{7}{yz} \right) + \frac{2}{yz} = \frac{1}{y} \left(\frac{3}{x} - \frac{4}{z} - \frac{1y}{zx} \right) + \frac{2}{xz} = \frac{1}{z} \left(-\frac{3}{y} - \frac{4}{x} - \frac{3}{xy} \right) + \frac{2}{xy} = 0$$

6. (a). $lb_1 + m b_2 + n b_3 = 0$

$lc_1 + m c_2 + n c_3 = 0$

Divide throughout by m. Thus:

$$\frac{l b_1}{m} + \frac{n b_3}{m} = -b_2$$

$$\frac{l c_1}{m} + \frac{n c_3}{m} = -c_2$$

∴ Eliminating $\frac{n}{m}$

$$\frac{l}{m} (b_1 c_3 - b_3 c_1) = - (b_2 c_3 - b_3 c_2)$$

$$\therefore \frac{l}{b_2 c_3 - b_3 c_2} = \frac{m}{b_3 c_1 - b_1 c_3} = \frac{n}{b_1 c_2 - b_2 c_1}$$

by symmetry.

(b). Multiply throughout by xyz .

Then $2x + 3y - 4z = -7$

$-4x + 2y + 3z = 19$

$3x - 4y + 2z = 3$

Multiply the first line by 16, the second by 10, and the third by 17 and we obtain

$43x = 129 \text{ or } x = 3$

Thence, $y = 5$ and $z = 7$

7. (a) Show that if two quadratics in two variables have a common factor in the parts involving the variables, the set can be solved as a quadratic.

(b) Solve the set:

$x^2 + xy - 2y^2 + x + 2y = 66, \text{ and } 3x^2 - 4xy + y^2 + 3x - y = 114.$

7. (a) Let C be the common linear factor, and A and B be the other linear factor. The equations are $AC = m, BC = n$, where m and n are numerical constants.

Dividing, $\frac{AC}{BC} = \frac{A}{B} = \frac{m}{n} \therefore A = \frac{m}{n} B$.

And since A and B are both linear, A is found in terms of B , and by substituting this value for A , we have a single quadratic equation.

(b). Here we have

$(x + 2y)(x - y + 1) = 66$

$(3x - y)(x - y + 1) = 114$

$\therefore \frac{x + 2y}{3x - y} = \frac{66}{114} = \frac{11}{19}, \therefore y = \frac{2}{7} x$

Substituting in the first,

$(x + \frac{2}{7}x)(x - \frac{2}{7}x + 1) = 60$

Whence $x = 7$ or $-8\frac{2}{7}$

And thence, $y = 2$ or $-1\frac{1}{7}$.

CONTEMPORARY LITERATURE.

The cool green and white on the summer number of the *Century* is only less attractive than the contents. The frontispiece is a fine portrait of Phillips Brooks. There is also a collection of his letters to children. The art element is strongly represented, "Contemporary Art in Japan," following one of John le Farge's "Artist's Letters from Japan." Mrs Catherwood's story reaches its third part. There are a number of good short stories by such writers as Grace King, Alice Brown, and Edward Eggleston.

Littell's Living Age for July 29 contains the conclusion of the article "English Whist

and Whist Players" from *Temple Bar*. The opening article is on "St. William of Norwich," by Augustus Jessop, and is from the Nineteenth Century. The stories are from Macmillan's and Belgravia.

Perhaps the most interesting article in the August *Atlantic* is on the "First Principal of Newnham College," by Eugenia Skelding. As befits a summer number, the quality of the magazine is somewhat lighter than usual, there being three short stories, by Ellen Olney Kirk, Edith M. Thomas, and A. M. Ewell, besides the third and fourth instalments of "His Vanished Star,"

by Charles Egbert Craddock. The second part of the "Studies in the Correspondence of Petrarch" is given.

Baltimore is the city discussed in the *St. Nicholas* for August. The article is fully illustrated and is by D. G. Gilman. All Canadians will be interested in L. R. McCabe's paper on the "Boyhood of Edison," which fully sets forth his Canadian origin. The serials are fully up to the attractive standard of the magazine.

The "Royal Wedding" number of the *London Illustrated News* is most attractive, every picture being devoted to some part of the beautiful pageant. Many of the usual departments are omitted in order to make room for the all-important subject. In the ordinary numbers there is at present appearing a serial by the successful young Canadian, Gilbert Parker, which is a decided advance on his earlier work.

The August *Overland* contains interesting articles on "Leland Stanford" and the "Chinese Through an Official Window." The other departments are fully up to their commendable standard.

Never is the *Critic* a more welcome sight than in summer, when it often comes where there is very little else to bring the best news from the outside world. Some gentle critic revels over an unlucky book on the "Art of Versification" and causes many a laugh, doubtless softened by pity. The portraits are those of Walter Besant, whose transatlantic tour receives considerable attention, and George William Curtis. The commemorative address on Mr. Curtis' life, delivered before the Century Club, by Parke Godwin, is reproduced in part. The Boston, Chicago and London letters are interesting as ever.

BOOKS RECEIVED.

The first Essay in Leigh Hunt's *Imagination and Fancy* has been republished in an attractive form by Messrs. Ginn & Co., of Boston, under the title "What is Poetry?" The Editor is Prof. Cook, of Yale, and the little book is sure to have many readers,

especially among students of English. Leigh Hunt's criticism, as Mr. Saintsbury remarks, is "such excellent good reading."

Later Canadian Poems, with portraits, edited by J. E. Wetbrell, B.A., and published by the Copp, Clark Co. (30c. and \$1.00.) will have a cordial welcome. The title explains itself. The poets represented are Cameron, Campbell, Carman, Lampman, Roberts, Scott, and a Supplement contains poems by Miss Machar, Miss Wetherald, Sara Jeannette Duncan, and others.

The appearance of this book and the literary excellence of the verse speaks well for current Canadian Literature. Our pupils should be familiar with these poems, whether by "Supplementary reading" or otherwise, and we think that the book will strengthen the love of Canadian literature in all who read it.

Messrs. W. J. Gage & Co. have just issued a new book of *Problems*, by Mr. C. Clarkson, Principal of the Seaforth Collegiate Institute. It is a good collection, and many solutions, especially the contracted algebraical solutions, sometimes given for arithmetical questions, appear in its pages.

Portraits of John Knox, Sir Thomas Gresham, Sir Walter Raleigh, and Sir Philip Sidney, are among the illustrations which appear in Part 17 of *A Short History of the English People*.

Few men live to re-write a book, after thirty years. Yet this is the history of the New Commentary on Acts, recently issued from the Press of the Standard Publishing Co., Cincinnati. (\$3.00).

The writer, the Rev. J. W. McGarvey, reminds us forcibly in the preface, of the progress that has been made in Biblical criticism, since his first Commentary appeared, and of the greater facilities now enjoyed by students and teachers of the Word. The Commentary is continuous, the text not being inserted, It is a plain, direct and condensed statement and explanation of the narrative of the Book of Acts.

The Copp, Clark Co. have in press, and will issue shortly, a little volume entitled *Canadian Historical Stories*, edited by F. J. Marquis, B.A., and based upon "Stories of New France," by Miss Machar and Mr. Marquis.

The recent changes in the regulations of the Education Department will doubtless cause greater attention to be given to Canadian History in our schools, and teachers will be glad to avail themselves of this and similar books in connection with their history classes.

(1) Shakespeare. *Othello*. Edited by K. Deighton. (2) *Needlework, Knitting, Cutting-out*. Elizabeth Rosevear. (From Messrs. MacMillan & Co., London, through the Copp Clark Co., Toronto). We are glad to see *Othello* added to the excellent English Classics Series. The Editor's Introduction deals ably with questions relating to the date, composition and contents of the play, and the notes explain many difficulties, rather too many perhaps, e.g. "all guiltless, wholly guiltless."

As for the second book, we lay it down with a feeling of respectful admiration for the authoress. We feel sure that it is very complete, as it contains all that we have ever heard of connected with the subject, and much more. It is beautifully executed, the illustrations being perfect, and it is clear and practical to the last degree.

Messrs. MacMillan & Co. have just issued parts 19 and 20 of the "Short History of the English People." (Illustrated Edition.) The last illustration is a fine engraving of the picture of Henry VIII, by Holbein, at Berkeley Castle.

A new music reader comes to us from the press of Messrs. Silver, Burdett & Co., *The Cecilian Series of Study and Song*. Common School Course. (By John W. Tufts). It is intended for those schools where some instruction in music is given, but where an extended series of music-books would be out of place. It is a suitable and attractive book.

School Needlework is the title of an illustrated hand-book by Miss Haggood, the teacher of Sewing in the Boston Public Schools. It is an excellent manual, simple and complete, and will help to prevent sewing becoming one of the lost Arts. Ginn & Co., Boston.

The Real Thing and Other Tales is the name of a new volume in MacMillan's popular Colonial Library. It contains five short stories by Henry James.

Mr. George E. Merkley publishes, under the title of *Canadian Melodies and Poems*, (Toronto: Hart and Riddell) a number of poems written at different times, chiefly on patriotic subjects. The author truly remarks in his preface that the history of Canada has a poetic background, and that the lovely lakes and majestic forests of our native land, as well as the heroic struggles of our ancestors for the flag, are fit themes for poetic inspiration and minstrel reverie. We are always glad to see a Canadian book and Mr. Merkley's verse possess considerable merit.

The third volume of the *History of English Literature*, which adds another to the many books that have made the name of MacMillan a household word, has now appeared, and is perhaps the best yet issued. It is the first of the Series: *The History of Early English Literature*, (by Stopford A. Brooke), and it is really the History of English Poetry from its beginning to the accession of King Alfred. We need hardly remind our readers of the great reputation of the author, or say that this is a very important book and interesting from beginning to end. These, for instance, are a few lines from the preface: "That poetry is certainly not of a very fine quality, but it is frequently remarkable. It has its own special qualities and with the exception, perhaps, of a few Welsh and Irish poems, it is the only vernacular poetry in Europe, outside of the classic tongues, which belongs to so early a time as the seventh and eighth centuries. The Welsh and Irish poems are few, problematical, and their range

is limited; but the English poems are numerous, well-authenticated and of a wide and varied range. In these two centuries our forefathers produced examples, and good examples for the time, of religious, narrative, elegiac, descriptive, and even, in some sort, of epic poetry. This is a fact of singular interest. There is nothing like it, at this early period, elsewhere in Europe." A great deal of attention has been paid to translations and to the historical side of the subject, in connection with which the author pays a tribute (how well deserved) to "the labour and genius of the later historians of Early England, especially of Mr. Green."

The Higher Criticism of the Hexateuch. By Chas. A. Briggs, D. D. New York: Charles Scribner's Sons. The name of the author of this book has now become a name of strife, a fact which one cannot very well forget in reading his books. This volume is designed for the general public and much technical material, chiefly useful for Hebrew scholars, has been placed in the appendix. Whatever we may think of the opinions of the author, there is much to be learned from his book, and few, we think, will question his purpose or motives. It takes the best efforts of both sides to find the truth.

Introduction au Nouveau Testament. Part I. Par F. Godet. Neuchâtel: Attinger Frères. In this work, which deals with the Epistles of St. Paul, and is dedicated to Neander, "mon vénéré et bien aimé maître," Professor Godet gives to the Church the results of life-long research and great learning. His ripe scholarship and his spiritual wisdom make this book helpful and important, but perhaps the best and truest word that can be said about it is, that it is suggestive. The style is clear and pleasant; it is not difficult reading, even for one having but a slight knowledge of French.

The Gospel according to St. Paul. By the Rev. J. Oswald Dykes, D. D. 6s. London: James Nisbet & Co. The first eight chapters of the Epistle to the Romans form the subject of this book, and the aim of the author is to state plainly the argument of

these great chapters and trace the development of thought. It is by no means an easy task, but the author has made his statements so plain and clear that the weighty arguments and difficult language of the text are more easily grasped. Those whose duty it will shortly be to teach lessons from St. Paul's writings will be glad of the help of this book.

Exercises in Euclid. By William Weeks. London: MacMillan & Co., and New York: 2s. More than seven hundred exercises on the first six books of Euclid are here printed, forming a collection which will be of great use to teachers. The grouping of these exercises is very skilfully managed; each group is introduced after the fundamental factor principle of which it is an illustration.

English Composition. By Professor Newcomer, of Leland Stanford University. Practical works on English Composition are becoming more numerous, and it is a good sign of the teaching of the subject. This is one of the best of recent books on English Composition, and will be found of much service. Ginn & Co., Boston.

The Epistles of Paul the Apostle. By Geo. G. Findlay, B. A. 2s. London: C. H. Kelly. The author is already well-known through his contributions to the Cambridge Bible, the Expositor's Bible, and the Pulpit Commentary. This little book is well conceived. It deals with the origin and contents of the Epistles, bringing each of them into its place, as nearly as may be, in the Apostle's life and circumstances, and so it has been gladly used by those who often lose the benefit of such studies because the results are not within their reach.

The third edition, revised and enlarged, of *Dr. Ward's Select Plays of the Old English Drama*, has recently been issued by the Clarendon Press at Oxford. The volume includes *Dr. Faustus*, by Marlowe, and *Friar Bacon and Friar Bungay*, by Greene; also a very valuable Introduction by the Author, and Notes and Appendices to the text. The Introduction is an able discussion of the relations of the authors and the var-

ious problems presented by the text ; but, of course, the notes, to which there is a good Index, are still more useful. There are some books which everyone who studies English Literature ought to read, and such, for instance, is the one before us.

Boswell's Life of Johnson. MacMillan's Globe Edition. 3s 6d. The edition is an excellent one and the interest of the book, as every reader of it knows, never fails.

Hooper's Ecclesiastical Polity. Book I. Edited by R. W. Church, M.A., Dean of St. Paul's. Oxford: At the Clarendon Press. One is often struck, as in the present case, on glancing at the names of the editors of the books of the Clarendon Press, with the distinction which attaches to these names. The late Dean Church, in the Introduction and Editor's Notes of this book has spared no pains to perfect his work, nor was the text unworthy of such pains. Hooper's style, though too much influenced by Latin models, will repay study. The text used is chiefly Keble's third Edition.

Spenser's Faery Queene. Edited by G. W. Kitchin, D. D., Dean of Winchester. Oxford: At the Clarendon Press. The Clarendon Press Editions are always favourites with students and it would be difficult to find a better example than this of the "Faery Queene." The Editor's Introduction, giving what is known of Spenser's Life, with some valuable remarks about his writings, and the notes appended to the text, are all that a student could wish.

Another of the Clarendon Press Series is Shakespeare's *Henry VIII.*, edited by W. Aldis Wright, M.A., D.C.L., LL.D., of Trinity College, Cambridge, whose work as an editor of the plays of Shakespeare is well-known. The Introduction deals with critical questions, such as the date and composite authorship of the play, while the notes, both critical and general, are alike excellent.

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FRIENDSHIP.

We do not "make" our friends, we find them only

When they have waited for us weary years ;

Some day we wander forth, a little lonely,
When lo !—a comrade at our side appears.

'Tis not discovery, 'tis recognition—

A glance, a greeting, and we grasp the hand,

No explanation needed, no condition ;

That we are friends, at once, we understand.

And if our paths divide, if we must sever,

Eyes turn away and clinging hands must part,

It matters not, for we are friends forever ;

Distance may darken, but not crush the heart.

We serve them out of eager love, not duty,

And none so safe as he whom love defends,
The tender words of Christ assume new beauty.

"Henceforth not servants—I have called you friends."

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