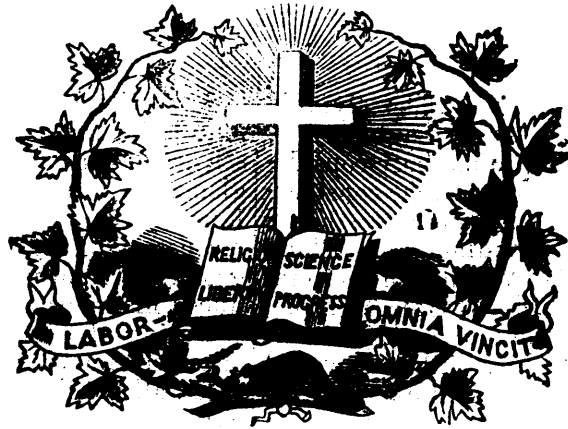


## Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- |                                     |   |                                     |   |
|-------------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/>            | Coloured covers /<br>Couverture de couleur  | <input type="checkbox"/>            | Coloured pages / Pages de couleur   |
| <input type="checkbox"/>            | Covers damaged /<br>Couverture endommagée   | <input type="checkbox"/>            | Pages damaged / Pages endommagées   |
| <input type="checkbox"/>            | Covers restored and/or laminated /<br>Couverture restaurée et/ou pelliculée   | <input type="checkbox"/>            | Pages restored and/or laminated /<br>Pages restaurées et/ou pelliculées   |
| <input type="checkbox"/>            | Cover title missing /<br>Le titre de couverture manque  | <input checked="" type="checkbox"/> | Pages discoloured, stained or foxed/<br>Pages décolorées, tachetées ou piquées  |
| <input type="checkbox"/>            | Coloured maps /<br>Cartes géographiques en couleur  | <input type="checkbox"/>            | Pages detached / Pages détachées  |
| <input type="checkbox"/>            | Coloured ink (i.e. other than blue or black) /<br>Encre de couleur (i.e. autre que bleue ou noire)  | <input checked="" type="checkbox"/> | Showthrough / Transparence  |
| <input type="checkbox"/>            | Coloured plates and/or illustrations /<br>Planches et/ou illustrations en couleur   | <input checked="" type="checkbox"/> | Quality of print varies /<br>Qualité inégale de l'impression  |
| <input checked="" type="checkbox"/> | Bound with other material /<br>Relié avec d'autres documents  | <input type="checkbox"/>            | Includes supplementary materials /<br>Comprend du matériel supplémentaire   |
| <input type="checkbox"/>            | Only edition available /<br>Seule édition disponible  | <input type="checkbox"/>            | Blank leaves added during restorations may<br>appear within the text. Whenever possible, these<br>have been omitted from scanning / Il se peut que<br>certaines pages blanches ajoutées lors d'une<br>restauration apparaissent dans le texte, mais,<br>lorsque cela était possible, ces pages n'ont pas<br>été numérisées. |
| <input checked="" type="checkbox"/> | Tight binding may cause shadows or distortion<br>along interior margin / La reliure serrée peut<br>causer de l'ombre ou de la distorsion le long de la<br>marge intérieure. |                                     |   |
| <input checked="" type="checkbox"/> | Additional comments /<br>Commentaires supplémentaires:  |                                     | Continuous pagination.  |



# THE JOURNAL OF EDUCATION

Devoted to Education, Literature, Science, and the Arts.

Volume XXII.

Quebec, Province of Quebec, June and July, 1878.

No. 6 & 7.

## TABLE OF CONTENTS.

Map-making in the Middle-Ages.....	81	POETRY :	
Science Teaching.....	87	Two Little Pairs of Boots..	108
Joseph Lancaster.....	91	Joseph Henry, Secretary and Director Smithsonian Institution, Dead.....	108
SCHOOL EXAMINATIONS :		What should our Boys read..	109
McGill Normal School.....	98	School Discipline.....	109
Senior School, Burnside Hall.....	101	The relative position of Drawing in elementary education....	110
The High School.....	101	MISCELLANY :	
St. Mary's College.....	103	How to Study Science.....	111
Berthier Grammar School..	103	Manners.....	111
Varenes College.....	104	Never Forget Anything ....	112
Bishop's College.....	104	Advertisement.....	112
Villa Maria Convent.....	107	Meteorology.....	112
Prince Albert Schools.....	108		

### Map-making in the Middle-Ages.

Paper read by E. T. FLETCHER, Esquire, before the Geographical Society of Quebec.

The advance of geographical science has always been commensurate with that of the commercial or political necessities of the age. The oldest attempts at map-making were limited by the horizon of the artist. The Chinese, the Indian, the Arab, the Greek, each of these looked on his own country as the centre of the world. Among the Indians and Greeks the middle-point of this was held to be the dwelling-place of the Gods. To the old Hellenes from Thessaly this point was Olympus. From the Homeric songs it is not difficult to construct a map that shall reflect the prevalent ideal of the Ionian Greeks. To their mind, in the extreme east, the River Phasis, a kind of strait, united the waters of the Euxine with the Ocean: on the west, the island of Trinakia, or Sicily, almost touched the mysterious narrows,

where darkness ever brooded, where was the descent to Tartarus, and where the River of Ocean took its rise, to flow round the entire earth as a girdle, bathing, at its discharge, Elysium and the Fortunate Isles. To them the world was a disc that floated in the circumambient ocean, as the yolk of an egg in the surrounding shell. There is a definite advance in the conceptions of the Ionian school of navigators, who traded far west of Sicily. The logographer Hecateus describes the map or scheme of the Habitable World, the *oikoumene* inscribed on a tablet by Anaximander of Miletus, about 555 B. C. On this nine thousand Homeric stadia were allowed for the distance from Greece to Sicily, and six thousand from Sicily to the Pillars of Hercules. Half a century later a similar schema, extending eastward as far as Susa, was depicted on a metallic tablet by Aristagoras, for the Spartans. The voyage of Pytheas of Marseilles, and the eastern expedition of Alexander the Great, opened new avenues of thought in the world of science. The Messenian Dicæarchus, in 321, composed a celebrated pinax, or tablet, of the *oikoumene* which was afterwards exhibited by Theophrastus at the portico of the academy. In this tablet Rhodes occupied the centre.

The Macedonian conquests in Asia, and the expeditions of Nearchus and Patrocles, to which they gave rise, led to the appearance of more carefully prepared marine charts, for the special purposes of navigation. The Ptolemies, then recently established in Egypt, gave their powerful assistance. Ariston explored the Arabian gulf; Timosthenes, the Mediterranean and the West. Eratosthenes of Cyrene, in 226, sought to determine the length of a degree. Assuming Alexandria and Syene to be under the same meridian, and their difference of latitude to be 7° 12', he deduced, from their measured distance apart, the

length of a degree to be  $694 \frac{1}{4}$  stadia. The olympic stadium being equivalent to  $605 \frac{1}{2}$  english feet, this would give about 79 miles, a measure considerably in excess, but which yet regulated the construction of charts for some time. The map of Eratosthenes showed the *oikoumene* as extending from Thule in the north, lat.  $66^{\circ} 27'$ , to  $11^{\circ} 25' N$ . In the west were figured the three peninsulas of Greece, Italia, and Liguria: and in the East, the four quadrilaterals of India, Asia, Media, and Arabia. Libya appeared as a triangle. The meridians were numbered from that of Alexandria.

Coming down to the times of Julius Cæsar, we find the large mind of the dictator revolving manifold schemes for the correct measurement and delineation of the Roman provinces. At his summons and command, three scientific Greeks, Zenodochus, Theodotus, and Polyclitus, were sent out, to the East, South, and North, to direct the necessary geometric operations. Their mission lasted twenty-five years (44 to 19 B. C.): in fact till after the emperor's death. His successor and grandnephew, Augustus, warmly interested in the statistics of the Empire, carried on the work, and, with the aid of a numerous staff of geographers and draughtsmen, completed that extensive map of the *Ager Romanus* which, under the name of the *Orbis*, was afterwards exposed to the view of the people. There yet remain a few fragments of this important work, which show that it was drawn on a cylindric projection.

The public roads of the Romans, the *via militares*, eternal and indestructible as their laws, covered the habitable world, and extended far and wide into the remotest districts of the Empire. Those dark-looking, narrow, compact, stone-built lines of travel, still visible in many places, reached like monstrous tentacula or feelers, over morass and mountain, plains, rivers, and deserts, into the farthest corners of the provinces embraced within the "*ditio potestasque Populi Romani*." Thence it ensued that for the convenience of travel, and for military and civil purposes, there were constructed numerous itinerary maps. These were long and narrow bands, where the positions and distances of all the stations and places of importance were noted. They were pictorial,—"*itineraria descripta, non tantum adnotata sed etiam picta*." The Pentingerian and Ravennate are especially noteworthy.

These itineraries from their extensive use and unscientific character may have had a prejudicial effect in making the construction of legitimate maps less common.

In the second century of our era, Ptolemy of Pelusium, aware of the convergence of the meridians, and the insufficiency of the cylindric projection to give room for the increasing number of northern discoveries with any tolerable accuracy, proposed the conic, which gives less distortion, and as a still farther improvement, he introduced a projection in which on the plane of the meridian, the equator and parallels are represented by circular arcs, and the meridians by arcs of an ellipse. This was an important service rendered to cartography.

Amid the darkness and suffering which gathered round the latter days of the Empire, chorographic science advanced but slowly. In the still deepening gloom we can but dimly discern the figures of the Emperor Theodosius II, who in 422, at Ravenna reconstructed the public maps, and of the Alexandrian geometer, Agathodæmon, who a century later produced his maps, on the ptolomean system.

During the terrorism and mutual isolation that attended the migration of the German and Slavonic races, all intellectual progress was arrested. It was a time of much misery. The open country, the uncultivated wastes of Europe swarmed with a desperate and wandering population without a country and without a home. In Italy, the old free peasantry had long since disappeared. Rome had been an exacting mother,—her armies had conquered the world; but in the process her sons had left their bones to bleak in every climate under heaven. The common soldier, the Italian legionary, crossed the sea with his eagles and spent his life beneath their shade: they were his household gods, his home, his civil polity, his all: and from the morasses of Germany and the sands of Syria he rarely returned to visit his paternal fields. Thus died out the hardy race of husbandmen, of those from whose ranks the seven hilled City had not unfrequently selected the leaders of her armies. Not all a dream, nay rather an absolute reality, were the warlike, simple minded races, whom the poets loved to depict as living with their robust offspring under the shadow of the oak-crowned Appenines. Vain was the attempt to supply their place by a discharged soldiery. The lands, where cultivated at all, fell into the hands of a few large proprietors, who possessed a multitude of slaves. Throughout the *Ager Romanus*, and Rome at that time still comprised the greater part of Europe, slaves took the place of the free laborer. Not unfrequently, the death of the proprietor, or the failure of his fortunes, threw vast numbers of these *servi* into the proletariat. Destitute and degraded, without a sesterce and without a friend, they formed a useless and helpless rabble, whose numbers were increased by an amalgamation with the remains of the old plebeian order and the colluvies of all the subject nations. The public highways were deserted: the municipia fell into ruin: travel ceased: and hordes of robbers and assassins swarmed in the open country, where the foot prints of civilization were disappearing one by one, and the morass and the forest were resuming their ancient sway. The barbaric invasions, recurring without cessation, everywhere possible and always imminent, destroyed all regular and reliable connexion between the various parts of Western Europe. There was no security, no sure prospect of the future, the ties were broken which bound together even the inhabitants of the same country, or the moments of the same life. Men were isolated, and the days of each man. The culture of the land, was impossible: and social activity everywhere became paralyzed. It was only under the shelter of religious institutions, in the cloister of the cœnobite, or the narrow cell of

the monk, that a few faint sparks of civilisation and refinement were yet preserved. The abbey of St. Gall possessed in the 7th century, a chart of elegant design, '*mappa subtili opere*,' as we learn from Radbert. (de casib. mon. scti. Galli. cap. 10). And Dicuil an Irish monk, in his treatise *de mensurâ orbis* speaks of the maps of the Irish and Anglo-Saxon monks of the 8th century, and of their relating to each other the adventures of their pilgrimages. These religious journeys were very prevalent at this time, and led to the production of numerous "cartes routières" or itineraries, which in some degree retarded the attainment of correct geographical notions.

The glories of the reign of Charlemagne, brilliant and evanescent as those of a meteor, were the product of the genius of one man alone, of him whose image stands before us, in its large proportions, through all time, as the wise legislator, the beneficent reformer, fronting the gloom and misery of the time

With Atlantean shoulders, fit to bear  
The weight of mightiest monarchies.

Amid the thousand cares and solitudes of his reign, the great king was ever alive to the interests of science. He invited learned monks from Ireland and Britain. He solicited the assistance of Ravenna, the residence of the last Greek emperors, and the latest school of Græco-Roman geography. Thus aided, he produced a map of the world, of square form, engraved on three tablets of silver, having the cities of Rome and Constantinople specially designated, with walls, gates, and towers, as on coins. The existence of this magnificent work was of no long duration. In the war which Lothaire, grand-son of Charlemagne, had to sustain against his brothers, in 842, the first of the tablets, which was the largest was broken in pieces and distributed as booty among the soldiers. A very precious monument of the reign of the illustrious Alfred the Saxon yet remains, a map attached to the manuscript of the *periegesis* of Priscian in the British museum. It has been published by Strutt in his chronicles of England. The epigraphs are in small latin type: In central Asia, we have the legend '*hic abundant leones*'; in the island of Typrobane (Ceylon?), '*his in oris immensa fruges*', near the Nile we have '*hic dicitur esse mons semper ardens*'; and, at Cartago, *magna, fruges, regio ipsa, sicut Africa, omni favens, leonibus, leopardibus, elephantibus*; on the western shore of the Caspian Sea, we have Gog and Magog. This is the latest known monument of the Roman Geographical school. Darkness, thick and palpable, followed.

But the lamp of science has never been wholly extinguished. As that sacred vestal fire, watched by virgin priestesses in rotation, which was ever nourished and never permitted to expire, so the bright flame of philosophy and science passed for a time from the guardianship of the Frankish nations to the schools of Cordova and the Caliphs of Bagdad. The name of Haroun-al-Raschid is familiar to all as a household word: and even now, at the distance of eleven centuries, the gloriole that surrounds his

brow is still bright and unfading. He was, in truth, a king among men. Wise and learned himself, he possessed the art of infusing into his people his own fondness for intellectual pursuits. He invited learned men from all parts and rewarded them with royal munificence. He caused translations to be made of the leading works in Greek, Syriac and Latin, and circulated them by innumerable copies. Dying, his mantle fell on a worthy successor, the Caliph al Mamun, who, it is said, offered the Greek Emperor five tons of gold and a perpetual treaty of peace, if he would send him for a time the philosopher Leo. During his reign excellent schools and large libraries were established at Bagdad and Alexandria. Contemporary with these efforts was the establishment of the Ommiad dynasty at Cordova, in Spain, which speedily became the chief seat of learning in Europe. Students came thither from France and other Frankish states, to perfect themselves in mathematics and the exact sciences. Besides Cordova, fourteen other chief seats of learning were established in Spain by the Arabs. These orientals introduced the numerals now in use: they simplified the trigonometrical operations of the Greeks: they adopted sines instead of chords: and extended the application of Algebra. Both at Bagdad and Cordova astronomy was eagerly studied, at special schools and observatories. The Arab mind was of wonderful activity. The mariner's compass, which Marco Polo is commonly thought to have brought with him in returning from his travels in the East, in 1260, was certainly used by the Arabs of Spain, as Renauld has shown in his translation of Aboul-feda, a century before that date, and perhaps earlier: gunpowder also, according to Aschbach, was in common use among the Andalusian Arabs towards the end of the 13th century, long before the birth of the Freiburg monk, Berthold Schwarz, its supposed discoverer.

In glancing very briefly at the geography of the Arabs, I may be permitted to remark that the Arab maps exhibit almost universally a system based on climates, or zones parallel to the equator. Ibn Khottair A. D. 830 makes out seven, extending from the equator to Northern Georgia: there being an extra climatal space beyond the seventh. Four centuries later Abul Hassan Nourredin, known as Ibn Said of Grenada, makes out nine. In research the children of Islam were indefatigable. Muslim ben Ali, who had been a prisoner of war in the Greek Empire, profited by his captivity to obtain all the knowledge possessed by the Greeks. He returned to his country in 846. At about the same time (840), the Kalif Vatssek charged Sallam to explore the coasts and neighborhood of the sea of Tabaristan, or the Caspian. The South also was visited: the Soudan was explored, the Nile, and Habesh or Abyssinia. Still more important were their oriental discoveries. The conquest of Sindh was followed by the reconnaissance of the countries more to the East. The merchant Soliman, in 851, traversed the "seven seas" to visit China. In 876, Ibn Vahab visited the interior of that country. At this epoch an extraordinary

activity was for some time developed in oriental commerce : the ships of the Chinese and Arabs cruised in concert, over the seas which bathe the vast peninsula of Hindustan ; Arabian travellers made their way everywhere. Of Massoudi, the most remarkable, it was said that he early quitted his native town, Bagdad, to pass over the earth as the sun passes through the firmament. In 915 he was at Bassora ; in the following year he travelled over India : then in succession he visited Southern Arabia, Palestine, Khorassan, Armenia, Syria, Africa, Spain, and Roum. He died in Egypt in 957. In this way invaluable materials were collected. Renowned also as geographers and map makers were Abou Ishak the persian, and Ibn Haoukal of Bagdad. Their maps, and those of the time, displayed a geographic painting, charged with descriptive epigrams. The seas, the islands, the lakes, the morasses, had a more or less circular form ; the towns were shewn ranged on a line, or in small chequer-squares, the mountains largely protuberant, the rivers wide ; curved like a bow, or drawn in a straight line, the whole illuminated with brilliant colors. The nomenclature was of course different from ours. Spain was farther Magreb : the nearer Magreb was Mauritania : the Black Sea was Bahar Nitasch. The Atlantic was the Sea of Darkness : Asia Minor was Roum.

Meanwhile the Astronomical College founded under the caliphate of Al Mamoun, at Bagdad, still continued its labors. Astrolabes of improved construction were invented by Ali Ben Isa, who thence acquired the surname of Al Astralabi. Syed ben Ali, and Khaled ben Abdulmalek, who had assisted in their youth in measuring the length of a degree in the plains of Vaset, established themselves at Damascus, where they labored in the observatory till their old age, towards the close of the ninth century. Other observatories were successively formed in Egypt, at Cordova, at Samarcand, and elsewhere. In all these the movements of the heavenly bodies were patiently watched and noted. Aided by these observations the illustrious Ibn Iounis, born 979, the most remarkable astronomer of his age, succeeded in determining the approximate latitude and longitude of nearly three hundred important positions. He tells us that he used the eclipses of the moon for some of his longitudes. His work still exists in manuscript, in the library of Leyden. In his list of places he qualifies by the term of " Medina " all towns of importance. Many localities are no longer to be identified, among others Kasr el Molh (castle of salt) in Taharistan, on the Caspian. Corinthia appears as Kartania, and Slavonia is called Atari, that being the name of a son of Japhet from whom the Arabs believed the slaves to be descended. The impulse thus given to science extended far into Orient lands, Abou Rihan, surnamed al Mohakka, or the subtle, a member of the Kharasmian society of savans, settled in India, mastered the Sanscrit language, and reconstructed the geography of Hind, or Hindostan. Among his fellow-laborers in the west were Arzakel in Andalusia, Aboul Hasra at the

foot of Mount Atlas, and El Edrisi, one of the numerous Mohammedans at the court of king Roger of Sicily. Edrisi affirms, among other things, that he saw with his own eyes in 1117 the grotto of the seven sleepers in Asia. His maps, which are chiefly itineraries, have attracted much attention. Two sections of these, reproduced by Joachim Lelewel, extend from England on the west, which is here on the right hand, to beyond the Black Sea on the east, and include, in breadth, the sixth and seventh climates. England, under the name of Ankiltara, is shewn round as a plum-pudding, and occupies the right hand lower corner, the south side of the map being uppermost. London is Londres : Dover is Dobris : Paris is Abaris : all spelt of course in arabic characters. Norbeza or Norway is an island. Suada or Sweden is opposite on the main land. A large lake is shewn north of the Euxine, near the sources of the Dnieper. The execution is elaborate. The mountains are sketched in elevation. In the original, the seas are colored blue with close wavy lines, the land being left white : the rivers are yellowish green : the mountains are of different colors, red, green, rose, violet, with white bars : the forests are green : the towns rose-shaped and gilt. The voluminous Aboulfeda, perhaps the most widely celebrated of all, and eminent as a descriptive geographer, is not known to have constructed any map or chart. One might even doubt whether he had ever seen one, had he not expressly referred in one place, to the map of El Harail. Contemporary with him, and illustrating the decline of Arab science, appears Ibn el Ouardi born 1292, died 1349, whose manuscript map of the world is still extant. It is fanciful and worthless. The mountain Khaf surrounds all the earth, or rather, stands on the outer edge of the circumambient ocean. The north is downwards : the south or uppermost part has a legend to the effect " here plants, animals, birds, all that has life, are wanting from the excessive heat." The river Nile comes from the east before turning to the North. Europe is shewn as an Island. The mouth of the Tigris is in the centre, and Africa covers all the southern or upper part. After him came darkness. Already the eastern Khalifate had been dissolved. In 1258 the last of the successors of the prophet was trodden beneath the horse-hoofs of the Mongols. Bagdad was plundered during forty days : two hundred thousand persons were slaughtered : and science and learning fled to other lands.

During this period of Arabian Supremacy and decline, the Frankish nations of Europe were passing through the darkness of the tenth century and the dawning twilight of the eleventh. The approach of the mystic year one thousand, when, it was thought, by some confused misapprehension of the millenium, the world would come to an end, was heralded and accompanied by a wide-spread feeling of terror, incertitude, and despair. Many charters and muniments of the time begin with the words, '*Nunc appropinquante fine mundi*' ' the end of the world now approaching.' The duties of life were neglected : the ground was left untilled : famine and its terrible

attendant, pestilence, walked openly abroad. As if by some mysterious sympathy with the terrors of the time, the Earth refused her fruits, and the fields their pasture, blight fell on the corn-plains, and on the vineyards of the hills: the forces of nature seemed failing: no growth came to maturity, a gray shadow as of old age and dissolution, enveloped alike the open country and the habitations of man. Through out the fairest provinces of Europe, the dead lay in heaps, with none to bury them. Then the invaders came. As eagles, that scented the mortality from a far, came the Scandinavians from the North, the Hungarians from the East, and the Saracens from the West, devastating Europe with a triple scourge. But the fated year, the year one thousand, came and went; and the world still lived on. The frame of nature seemed yet unshaken; the seasons alternated as of old; the sun still shone, and the dews of heaven descended. In that vast and wide spread feeling of relief which followed, Humanity seemed to re-assert its powers and privileges with renewed and redoubled energy. Towns were incorporated: industrial interests were protected, banks were founded: markets and staples were created by charter: the mediæval communes arose. The laws were more effectively administered: justice returned to the earth, which is seemed so long to have forsaken, the highways and lines of travel were protected, and, as a necessary consequence, trade and commerce revived, nay became extended and enlarged, with the progress of the crusades and an increasing knowledge of the Asiatic peoples and products. The Italian states, the powerful cities of Genoa, Pisa and Venice, became the carriers of Europe and of the soldiers of the cross. Their navies appeared in every sea; and their discoveries far transcended the narrow limits of preceding ages. The southern hemisphere became known. The opening stanzas of the *Purgatorio* of Dante bear testimony to the fact that the constellation of the Cross, which revolves in close proximity to the south pole, was, in the thirteenth century, as it has ever been since, an object of wonder and admiration to antarctic voyagers.

Among the maps published by Richard Gough in his *British Topography*, London, 1768 and 1780, are given some curious specimens of English map making in the 13th and 14th centuries. Two of these are itinerary maps, one from Dover to London, the other of the four main roads through Britain, but the most remarkable, and perhaps the earliest, is the facsimile of a map of the British Islands drawn on vellum, and of an accuracy hitherto unknown. Lelewel terms it "*le premier beau monument de la carte topographique de situation*," that is, as distinguished from the *cartes routières* or *itinéraires*, and the *portulans* or marine charts of harbours.

The commercial cities took the lead in chartography. The Doge Francesco Dandolo suspended the finest charts in the ducal hall. There were innumerable copyists, and the primato in drawing must be accorded to the Venetians. An atlas of sea maps by Pietro Visconte of Genoa is preserved in the Austrian Library at Vienna signed and dated 1318.

The Genoese map of Pizzigani was also widely known. The medicæan portulan of 1351, from Florence, is composed of eight double maps on parchment. It is to be noted that in all places, at Venice, Genoa, Majorca, Lower Italy, and Spain, the marine maps had thrown off the antiquated and effete nomenclature taken from Holy Writ. The *Rose-des-vents* appears on them all. The bearings and orientation are defective, being based on the magnetic compass. The chart of Pizzigani shews, on the borders of the Western Ocean, near Finisterre, the figure of a woman turned towards Europe and forbidding future progress. But the Catalan, fearless of danger, the child of adventure and paladin of the open seas, has his *rose-des-vents* far out in the broad Atlantic. He fears nothing, so long as his compass is with him.

There is one thing that appears remarkable on many of these maps: northern Africa is represented as studded with names, and covered with lakes and water-courses, where our modern maps shew almost a blank vacuity. Sanutos map of 1320 from the Paris codex, the *Tabula Catalana* of 1375. Pierre D'ailly's *mappa Mundi*, and the chart of Mauro Camaldolese 1457, all these shew the Sahara traversed by streams and highways, filled with lakes, and dotted with hamlets and villages. When Tunis was a Roman province, the country supported a population of twenty millions. The number of inhabitants does not now exceed a million and a half, and it is doubtful whether a much larger population could find subsistence there at the present day. Lieut. Col. R. S. Playfair, the British Consul General in Algeria, attributes this changed condition to the extensive destruction of forests which has taken place since ancient times. Vast plains, now covered with arid sand, were formerly clothed with timber. Has this gradual desiccation been general throughout Northern Africa? And may we assume from this that the district of the Sahara was formerly less sandy than at present? It certainly was more travelled, and doubtless better known. In the old times of Carthage the commerce of the city with the interior was very great. There were long lines of caravan travel covering the Sahara as with a net work, and from Soudan she received elephants, slaves, ivory and gold. The salt lakes of the interior were an inexhaustible source of traffic, Soudan being destitute of salt. The substitution of marine for inland commerce seems insufficient to account for the change. Perhaps, the sands of the desert, advancing slowly through many ages, have gradually obliterated the marks and footprints of civilisation, and have in this way, reduced the vast districts of the Sahara to the solitude and silence of an unbroken desert.

The close of the thirteenth century was made famous by the travels of Marco Polo the Venetian, who may find mention here, although no map maker, from the immense influence his journeyings had on map making and on geographical discovery. Marco was incomparably the greatest traveller of the middle ages, and has been called the Herodotus of those times. His life is a romance. It was his fate,



for a long time to be ridiculed as a fabricator of monstrous stories and exaggerations. He was nicknamed "Marco Milione" from his frequent use of that high numerical term in speaking of the countless population and immense revenues of the Tartar Chinese Empire, where in sober truth his numbers were by no means exaggerated, however much they might seem so to the divided and small states of Italy and to the then poor kingdoms of Europe. Even after death he was not spared. For many years, in the masquerades of the Carnival, the Venetians always had, for one character, a "Marco Milione," a buffoon who amused the mob by telling whatever extravagant tales came into his head. His chief jest lay in describing cities with a million of bridges, birds with a million of wings, and so forth. The immortal narrative of Marco was drawn up while he was in prison, with the aid of his friend Rustighello: It was completed in 1298, thus synchronising very nearly with the completion of the sublime vision of Dante. A coincidence not without significance. The Florentine, wrapt in inner life, exploring the secrets of the unseen world, while the Venetian, living only in sunshine, reveals in artless story the wonders of central Asia and far Cathay, realms

Where the gorgeous East, with richest hand,  
Showers on her kings barbaric pearl and gold.

It is said that when the great traveller lay at length upon his death-bed, some of his scrupulous friends entreated him, as a matter of conscience, to retract such of his statements as appeared to them fictitious; and it is added that he indignantly rejected their advice, protesting that instead of exceeding the truth, he had not told half the extraordinary things he had seen. Posterity, however, was not slow to do him justice: the wise and learned of all lands saw that every year, and every voyager, confirmed his integrity and established his fame. Henceforth he reigned supreme.

But an ignorant misapprehension of his writings led to a distortion of the maps of the Orient. Marco Polo had made no astronomical observations, nor had he even mentioned the length of the longest day at any place. The Nürnberg geographers therefore, who were the first to utilise his labors, were obliged to determine the extent of the countries which he had traversed by his vague estimates of days journeys: but the length of the journeys was greatly exaggerated by them, as they were entirely unacquainted with the peculiar character of Asiatic travel. The consequence was, that, on their maps and globes, Asia extended eastward over nearly the whole of the Pacific, and its eastern shores were placed almost on the meridian of the Antilles. The Globes of Martin Behaim, 1492, preserved at Nürnberg, shew China and the East extending fully half way across the western hemisphere. The Charta Marina Portugaliensium shews Asia extending eastward to 225° east from Ferro, or about 100° east of its true position: and the

same is to be said of the tabula of Bernardus Sylvanus of Eboli, 1511. In Gemma the Frisian's map, 1540, Labrador is a mere strip of land painfully squeezed in by an arm of the sea skirting the east coast of Asia. This error of the Nürnberg school was attended with very important consequences. Columbus of Genoa, relying on their estimates, considered that the shortest way to arrive at the Eastern parts of Asia would be by sailing to the west. Thus he discovered America.

Side by side with the incunabula of the wondrous art of printing, were the beginnings of copper-plate engraving, a process due probably to Thomas Finiguerra, and dating from about 1460. Its utility in connexion with chorographic representations, was immediately perceived: and Arnold Buckinck, an associate of the printer Sweynheim, published an engraved edition of Ptolemy's Geography at Rome in 1478. Maps were now multiplied a hundred fold: and the vast expansion thus given to their appearance and reproduction received an additional impulse from the discoveries of the Portuguese on the coast of Africa under the patronage of Don Enrique, son of John the Bastard. In the maps emanating from the academy founded by that illustrious prince, we may observe that nautical charts were now delineated in a manner more useful to the mariner by projecting the meridians in parallel straight lines, instead of curves, a notable improvement in hydrographic science. These early maps, imperfect and incorrect as they were, may seem to us in many respects a chaos of distortion and confusion: yet it was on these that the patient eye of the great Genoese rested through long hours of anxious meditation, while hope and doubt, confidence and distrust, yet struggled for mastery in his mind.

Here let us pause. We stand on the threshold of the sixteenth century. A few steps more would bring us to the great name of Gerard Mercator, the reformer, nay we may almost say the creator, of marine cartography. But he belongs rather to the modern period. We may not transcend our limits. From this standpoint we see the mists and darkness of mediæval times retiring on every side to give place to light and splendor. Columbus has revealed the Western Continent. Vasco de Gama has doubled the Cape of Good Hope. The golden portals of the East and of the West are open. The face of the earth is renewed, and the highways of commerce are thronged with her children, in search of fame and fortune. And if results so important may be ascribed to the labours of those, a very few only of whose names we have noted,—what shall we say of those uncounted numbers who have died, and left no name? There was a time when, filled with an enthusiasm which we, who live in the grey decrepitude of the world, can neither understand nor appreciate, multitudes of voyagers swarmed forth into foreign lands, careless of danger, and anxious only to enlarge the boundaries of science. They were the stepping stones to farther progress. Their bones whitened at the source of the Nile, on

the steppes of Asia, and in the heart of Cathay. Voiceless, nameless, unhonored, and unsung, they went to their graves as beds, so that knowledge might be increased, and others might profit by their labours. Living in the exercise of a sublime humility, the pioneers of science, the benefactors of their race, they died to be forgotten of all men. All honor be to them ! for, so living and so dying, they have not lived in vain.

E. T. FLETCHER.

Quebec, May 26th 1878.

### Science Teaching in Schools.

Paper read by R. WORNELL, Esq., D. Sc., M. A., before College of Preceptors.

Evening Meeting.—Jun: 19, 1878.

Fifteen years ago, a Commission was appointed to enquire into the education given in our Public Schools, and one of the impressive points in the report of the Commission was that which exposed the almost universal neglect of Science teaching. After this report was issued, efforts were put forth on all sides to remedy the defect. The press and the profession were alike unanimous in advocating reform ; and, for a time, it seemed as if success must crown the exertions which were called forth by this educational "demonstration." Since that time much has been said—ably and forcibly said—on the advantages to be reaped from the teaching of Science. It has been shown, that it tends to develop faculties which no other educational instrument will develop, and therefore that it ought to form a part of every liberal system of education. So thoroughly has the subject been dealt with that it is by no means easy to discover a new argument to urge in its favour. Yet it seems to me that the unanimity which characterised writers on these subjects ten or fifteen years ago, has disappeared, and, what is of far greater importance, masters of schools speak with less and less confidence of their scientific work. The reason is, that masters are becoming painfully aware of the very great difficulties in the way of so teaching Science as to make it of real educational value ; and their misgiving are observed by critics who neither understand nor respect scientific thought, and who, regarding scientific instruction as a rival of the traditionary means of education, are ready to seize the opportunity for speaking of it in disparaging terms.

But, I believe that the latter condition, namely, that in which we now find ourselves, is much more hopeful than the former.

If a new branch of study could be so easily introduced with a staff of teachers who had never seen it taught, and who had little or no preparation for the work, the new study would be but of little value. If Science teachers could be made in a day, they might be dispensed with, and the world would not miss them. If all men continued to laud a system of education as immatured as that which has been grafted on to the older system, what hope would there be of its ever arriving at a healthful maturity ? What we have now to do is to try to understand the present position of Science, the causes of opposition, failure, and disappointment. Then we shall be better able to remedy what is defective. Believing that this can be done only by the practical teacher, I accepted our Secretary's

invitation to introduce the subject for to-night's discussion.

In what I have to say, I shall adopt the orthodox three divisions, with an application. I shall consider—(1) The tone of the opponents of Science outside the profession ; (2) Some of the defects and some of the causes of inefficiency in Science teaching in Public Schools and their remedies ; and (3) I shall conclude that, being practical teachers in schools, you expect me to give some practical suggestions as to the manner in which, in my opinion, Science should be taught in schools.

And, finally, if time permits, I will sketch a lesson for young children.

First, with regard to external opposition to the introduction of Science. I wish to point out how rarely now anyone directly disparages the sort of discipline which it affords. Few there are now who say that men and women are properly educated who have had no training in habits of accurate observation, and whose minds have never been led to search out any of the laws which govern the phenomena of nature about them. No ! their hostility is indirect, and usually resolves itself into parading and exalting some other branch of knowledge, and instituting a comparison between it and Physical Science to the disadvantage of the latter.

A greater attention to Science is advocated, and the reply is, "Let us cultivate the imagination." As if the world could be divided into men and women who have some knowledge of Science and no imagination, and others with imagination and no knowledge of Science. As if a man could have a cultivated imagination without a knowledge of nature and her laws, or as if one could know nature and be unimaginative. Cultivate the imagination by all means. The injunction could not come with a better grace, as it could not come with a wider meaning, than from a man of science. It is one object of the training we advocate, that it extends the range of the imagination—it is a result of this training that it gives a wider sympathy—it enables one to realise more fully one's relations to others. This wider sympathy and deeper knowledge of that which is not of one's self must necessarily afford a broader basis and a deeper incentive for the exercise of the imagination. Don't for a moment let us accept it as an alternative, that we may either cultivate the imagination or teach Science. Too frequently men of Science have been drawn into discussions of such an alternative. When this is the case, there follows an unprofitable wrangle something like the following, which, I need hardly say, is an imaginary picture, a burlesque if you please. An advocate of Art presents himself and begins : "You recommend Science, I recommend Art. The question between us is, what are the relative educational values of our respective clients. The case is Art *versus* Science. The grand and sublime *versus* the small and mean. Art deals with what is ethereal and celestial ; Science with what is coarse and terrestrial. Art elevates man ; Science degrades him. Art moves him to great and noble deeds, inspires him with mighty aims and high desires ; Science fills his life with petty details, and mere matters-of-fact. Art is like a bird of the air, "with its wing on the wind, and its eye on the sun" ; Science is like a beast of the field, for ever "getting his foot in the mud and his snout in the mire."

The advocate of Science is now tempted to reply in the same tone ? "Which is the more truthful, Science or Art ?" "Science deals with what is real,—it supplies man not only with the necessaries, but also the luxuries of life ; Art deals with the unreal, with shadows,



Science teaches us to conquer nature, to apply its powers to the needs of the human race, and enables us to meet the realities of life; Art unfits man for the duties of life, by making him dreamy and visionary. Science ameliorates the sufferings of mankind; Art portrays them, and intensifies them by presenting to them a mirror by which their images are added to their reality. Science is wholesome food for the mind; Art is an intoxication." So the wrangle proceeds; and neither Art nor Science, neither the processes nor the results of education, are in the slightest degree benefitted by it.

Now the commonest of these alternatives that are offered is that between Classical studies and Scientific. We are asked to look at the long lists which history affords of distinguished statesmen, orators, judges, soldiers, sailors, poets, scholars, divines,—great men that a classical education has produced. We do look on them, and we are proud to think they are our fellow-countrymen. We are proud also to know that such honourable careers and enviable renown may still be the lot of those who have the ability and integrity to earn them.

But we are convinced that these heroes do not owe all their fame to their classical education. None of these men would have been less great if they had known more of Science; and the long lists would have been still longer if to many who have died without fame Science had been allowed to introduce the work which would have been congenial to them.

Very lately we noticed, in a leading review, this mode of stifling the plea for a better employment of Science as an instrument of education. We are to look at the claims of the literatures which have done so much in education, and "which have this other charm of proving that people who did not sell lakes for manufacturing purposes, or blacken the earth and sky with noxious vapours, yet led happy lives in perfect civilisation." The temptation to retort is great, but nothing is gained by this kind of controversy. We are not called upon—no one is called upon—to consider whether it is better to give an exclusively literary education or an exclusively scientific one. It has been said by a distinguished classical scholar, that "Classical education neglects all the powers of some minds and some of the powers of all minds." The same could be said of an exclusively scientific education. It is not therefore a question of one or the other,—we must have both. A liberal education will be scientific as well as literary as well as scientific. We are not called upon to choose between them.

There is a choice open under certain circumstances between a literary education purely ancient, and one that is modern. If a boy who has to go into active life at 15 or 16 comes to me at the age of 12 to be educated; it may be a question whether the literary part of his training shall consist in learning the elements of the Latin and Greek Grammars, or whether it shall make him acquainted with the standard Classics of his own language.

Milton's "Paradise Lost" may not be so grand an epic as Homer's *Odyssey*, or Virgil's *Æneid*—the odes of Dryden or Gray may not be so sweet, sublime, or rapturous as those of Horace or Pindar—the satires of Churchill or Pope may be less keen and less vigorous than those of Juvenal—Gray's *Elegy* may be insignificant compared with the elegies of Ovid—the poems of Shelly or Keats may be less melodious than the lyrics of Sappho—we may have no historians to compare with the Father of History, or with Livy or Tacitus, no orators to compare with Demosthenes;—nevertheless,

it is better for an English youth to know the works of Milton, Dryden, Pope, Burke, Macaulay, and the other Englishmen I have named, than that he should spend the time which would give him an acquaintance with them in learning the first steps only in the direction of that greater vigour, sublimity, or sweetness, the merest traces of which he will never see. He may know these works, and find time for other studies which will develop powers and strengthen faculties that studies of literature simply would never reveal. When our grammar schools were founded, we had no English Classics; happily our language has since then proved itself capable of expressing all the languages of Greece and Rome were ever able to express. No doubt this is due in great measure to the fact that the men who have had most influence in making the language what it is, have been careful, laborious, and successful students of the ancient masters. We are not deprecating a study of ancient literature, but we rejoice that a literary culture is within the reach of those who could never obtain it by means of the old languages. I cannot even hint that Shakespeare's palm is a borrowed one; but, with this exception, I am ready to admit that the best literary treasures in our language are but imitations. What follows? Let us go to their models by all means when we can; but it is better to be familiar with the imitations than to spend all our time in learning the way to the originals, and then to die without having seen so much as their shadows.

Davy has used this assumed inferiority of modern to ancient authors as an argument in favour of Science teaching. He says,—“Do not regard as indifferent what is your true and greatest glory. Except in these respects (*i. e.*, the achievements of Science), in what are you superior to Athens and Rome? Do you carry away from them the palm in literature and the fine arts? Do you not rather glory, and justly too, in being in these respects their imitators? In what, then, are you their superiors? In everything connected with Physical Science, with the experimental Arts. These are your characteristics. Do not neglect them. You have a Newton, who is the glory, not only of your own country, but of the human race. You have a Bacon, whose precepts may still be attended to with advantage. Shall Englishmen slumber on that path which these great men have opened? Say rather, that all assistance shall be given to their efforts,—that they shall be attended to, encouraged, and supported.”

The question that does present itself is, shall we, under certain conditions, of which time is the most important factor, take one form of literary training or another? Except as rival claimants for a portion of the time of the young student, Science and Classics are in no way opposed. Everyone who knows the claims of both will agree with Canon Farrar when he says that “Greek and Latin, taught in a shorter period and in a more comprehensive manner, should remain as a solid basis of a liberal education;” and at the same time will ask with him, “Why can it not be frankly recognised that an education confined to Greek and Latin is an anachronism?”

The lesson which these comments are intended to convey is this—let us not be seduced from earnestly endeavouring to place this agent at the service of our pupils by the invidious comparisons between Science and older branches of knowledge which are placed before us.

Sometimes, instead of a particular subject, some laudable effect or aim of education is mentioned, and it is tacitly assumed that Science has no share in it; for instance, we are asked,—“Are not breadth of view

and habits of intellectual accuracy worth having, even at the cost of losing some years of early training in Science?" "What is Science but a collection of dry facts and details?" True education gives life, light, breadth and order; and "A dark life, a narrow life, a life crowded with petty details, is not really life at all."—(*Saturday Review*.)

We quite agree with this description of education, though, of course, not with that of Science. Why do we want Science to be more widely used?....It is because we wish to impart light, breadth, order, and habits of intellectual accuracy,—because we wish to give life and energy, not to one only, but to every faculty and every sense. Of course, there are many respects in which education by means of Science resembles education by other means, just as there are many respects, in which scientific knowledge resembles all other knowledge. It has been remarked lately by Mr. Goschen, that poetry, history, and all literature worthy of the name, opens up "sources of amusement often rising into happiness." This has been also said of Science; and Professor Huxley remarked lately that it is the special business of Science to satisfy and direct aright that infinite curiosity that there is in man, and which, though often the source of sorrow, is the source of one of his highest pleasures.

There are few who know the value of Science in education. It becomes Science teachers to increase the number of those who know it, because they have benefited by it. Let all other educational agents do all that they are capable of doing; Science may do many things in common with them as well as they, and will do much that other studies cannot do.

When the work of this agent is free, the minds of men will be less narrow: sympathies will be wider; malice and uncharitableness will be less frequently met with,—for man will be better able to distinguish truth from falsehood—that which is from that which seems—that which can be demonstrated by observation from that which is purely hypothetical.

Secondly, Let us consider the discouragements of Science in our public schools. If the masters of these schools seem to stand in the way of progress, we may depend upon it, it is because of the magnitude of the difficulties in the way of making this teaching sound, safe, and thorough. Most of these men are too intelligent not to see that there is a proper place for Science in modern education; they are too conscientious to deny that of which their minds are convinced; and too earnestly devoted to the interests of all their scholars to despise what might prove of immense benefit to some.

When it was clearly shown, by the evidence before the various Commissions, that room should be found in the curriculum for new subjects, they hastened to attach Modern Departments to their schools; and let us ask why, so far as these Modern Departments are concerned, Science has not fulfilled the expectations formed of it.

To make the new work successful, the ablest, most earnest, and most enthusiastic teachers were required; but, as a rule, the Science teaching was given into the hands of a junior assistant, whose only qualification was, that he could be most easily, spared from other work. In how many schools in the Science teaching under the direction of the best and most influential teacher, or the man of highest scholarship? Perhaps in one or two. Another mistake was, that the teaching took the form of lectures. Those interesting and often masterly expositions of the theorems and laws of nature, illustrated by brilliant pyrotechnic displays, which constitute the popular lectures of popular professors,

became the models which the Science teachers, in a clumsy and bungling manner, sought to copy.

Such lectures may be admirable for the adult audiences for which would be of little educational use in our schools. If given to our schoolboys, what little knowledge they conveyed would be, showy and ostentations in character, and they would inevitably produce the appearance of knowledge without the reality. In the hands of inferior men, as instruments of intellectual training, they became positively contemptible.

Again, this imitation of the popular lecturer has caused the introduction of unnecessarily expensive apparatus, and the cost has disheartened many who were at first willing to respond to the demand for Science teaching. I have heard of a newly-appointed Science master who, on receiving a vote of £100 for apparatus, immediately spent £60 on an electric lamp, with battery of 50 Grove's cells. Another's first order was for 28 lbs. of mercury, and 4 lbs. of phosphorus. Appliances will naturally grow without much expense, in the presence of the good teacher. The want of apparatus is not the greatest need. We want the teachers. Let Science be honoured, where it is possible, by the most exact means for teaching as well as research, for she is worthy of all honour; but it is not characteristic of the good teacher to waste his strength in groaning over his want of appliances. If he has a knowledge of his pupils, and of the art of teaching, as well as of his subject, he will soon utilise the means which are always at hand.

Not only in the teachers, but in their pupils, has Science been placed at a great disadvantage.

It was frequently said, by those who pressed the claims of Modern subjects, that if Physical Science were introduced into our schools, "we should have fewer complaints of the number of dunces sent into the world after the completion of their ordinary studies." Though in a sense true—true as meaning that some who might have been considered dunces, if they had never formed an acquaintance with Science, by its means prove that they are not dunces—yet, as it seems to have been accepted, the notion has done undoubted harm. In many schools it seems to have been taken to mean—let Science have the dunces. The best gifts are to be reserved for other shrines,—here we may sacrifice the lame and the blind of the flock, and whatever would not be elsewhere acceptable.

What are we to expect from such a condition of things? Do men gather grapes of thorns? A distinguished schoolmaster (whom I now see present) remarked to me, about a fortnight ago, that the boys who came to him from the Modern side of a Public School were always intellectually very inferior to those who came from the Classical side. Is it to be wondered at? Only in an age of miracles could it be otherwise. The headmasters of these schools are appointed because of their high classical scholarship, and it would show an ignorance of human nature to suppose that they will strive to place their Science departments under commanding, intelligent, and scholarly leadership. The traditions of the schools are all associated with classical learning—the best minds are induced to follow these studies exclusively—the Modern side is regarded as a refuge for the dunces. The present practices of the school and its traditions combine to cause Science teaching to be neglected and despised by the most intelligent and industrious of its pupils. Where shall we find the remedy? We shall never find the remedy until we find the teachers. Give Science the best teachers and the best scholars. It demands the widest capacity, the highest intelligence. Its problems are as difficult as any the human mind has been able to solve,—indeed, it

presents to us many that have not yet been solved; and it is fair to conclude that, when administered by able men who are bent on making the most of it, it will afford mental discipline as severe as can be administered. Let us make no mistake on this point. No branch of study makes greater demands on the mental powers, the perseverance, the industry of teachers and pupils. Whatever you do with your imbeciles, be assured that you cannot make Science teachers of them.

But how are we to get these teachers, if nothing short of a miracle can bring them from our public schools. We have two sources of hope. In the first place, as we have Classical schools with Modern departments, whose venerable traditions are sure to secure their highest talents for classical studies and classical tuition; so let us establish Modern schools with Classical departments, the leading masters of which shall be scientific scholars of wide culture and experience in teaching. There are such men, but they have not been tempted into our schools. If I were asked to name the prince of Science teachers, I should have no hesitation in pointing to a man whom most of us have heard. He has all the characteristics of a great teacher. He reads the minds and estimates the powers of his hearers, so that, while he always demands some effort on their part to follow him, the effort is always possible to them, for he is never beyond their depths. Whatever the age or class of his pupils, he always brings them *en rapport* with himself, and excites in them enthusiasm for his subject. The feeble efforts of children, and the matured aspirations of scholars and savans, are alike rewarded; each is encouraged to trust in his own powers to discover truth; and we older students who have had at times to listen to hours of tangled eloquence, which none could comprehend, may be induced to reflect how much of the clearness of the argument is due to the teacher, and think of the man; but children come from his teaching, thinking not of the teacher but his subject; feeling they have understood his exposition, that they have really thought out something for themselves, and so strengthened in a natural and healthy self-confidence.

There is no danger, under his teaching, either of confounding, on the one hand, Science and Magic—the teacher and the magician; or, on the other hand, Science with a dry-goods store, and the teacher with the retailer of small wares. Now I say, give us good Modern schools with Classical departments, and with Huxleys as Head-masters; then shall we learn the value of Science as an instrument of culture,—then shall we find the ablest and most intelligent pupils becoming teachers of Science.

The Charity Commissioners are resuscitating old foundations and building new schools; they are bringing the constitutions of other schools into harmony with the present time. Why do they not give us some Modern schools with Classical departments,—some great Public Schools presided over by Scientific scholars? They make, in their schools, the most revolutionary changes in all other respects; why not so far depart from the type of the schools that are hampered by the trammels of tradition as to found schools where the head of the Science department may be the head of the whole school.

The answer given is, that the founders have mentioned Latin and Greek as the principal studies, and so they must remain because it was the pious founder's wish. But the pious founder said that the children were to be clothed alike in flannel gowns; and many people think it a pleasant sight to see a troop of children uniformly clad, marching with meek and humble mien, bearing

themselves lowly and reverently to all their betters. The sight brings to our recollection the charitable dispositions of our countrymen and countrywomen, and enables us to identify ourselves with a munificent and charitable race. Yet you are abolishing these pleasant relics of the past.

Again, the pious founder said they should have porridge for breakfast, and rye-bread for supper, and you give them tea and coffee and things he never heard of. What is the reply? If the pious founder were here to taste these lately-imported beverages, he would change the prescribed diet. Flannel is warm, porridge is wholesome, rye bread is good; we will have them in their places; but we shall best show respect for the pious founder if we give him credit for intelligence, and assume that, if he were here now, he would have us take advantage of the world's progress in these latter days. Oh, the dishonesty of human prejudice! The ghost of the pious founder is like the ghosts in modern spiritualism: he appears only "when the influences are suitable." Considering the magnitude of the changes which have been made, there can be no real impediment to the course we suggest. Give us a few schools in which Science shall have the highest place.

But our other hope rests on those teachers who do not labour in chains. Many such are members of this College, and I have taken so much pains to demonstrate that the constitutions of our Public Schools should not be taken as models in respect to this subject, that I may the more forcibly urge you to bring all your knowledge of the art of teaching to bear on this subject, and to work out for yourselves the problem of the true functions of Science as an instrument of education. It can only be worked out by practical teachers who know the subject. The hope is not without support, while in University Local Examinations the percentage of candidates who satisfactorily take up Science is very small, and is not increasing in any formidable rate; in the examinations of the College, both in the candidates who take up the subject and in the quality of the work done, progress is most rapid and satisfactory.

Thirdly—what are we to aim at in our endeavour to use Science in Schools? The objects to be aimed at are as follows:—

- (1) To teach the children to observe objects and operations.
- (2) To describe accurately what is seen and done.
- (3) To reason on simple phenomena.

Now, there should be three courses, or three periods, in which these three objects in succession have the chief consideration. In the first course of Science lessons given to the youngest children, we should tell little or nothing,—tell only the names of things used, and as few of those as possible. The object being to excite a love of observation and a longing for scientific knowledge, the lessons will principally consist in exhibiting differences and getting them seen and pointed out.

In the first stage the teacher will be satisfied with evidences of observation; but, in the second stage, he will be bent on receiving the answer in scientific and grammatical language.

Finally, he will put off to the last stage, or leave to be formed at a later time, the more general laws and the theories of Science. The reasons for this will, on a little thought, be evident. These theories and laws form the crowning stones of the pyramid, and must be placed last,—a broad base with many stones having to be laid first.

We must begin with common and familiar properties of things—a glass of water or a bottle of air. With a few glass tubes which can be bent as required, a few com-

mon vessels and a small pair of scales, how many properties of fluids can be shown which ordinary people never discover? Freeze the water, boil it, and examine it in different states.\* The lessons should at first all consist of comparison or experiment, and questions by the teacher and answers by the children—experiment, question, answer again and again in rapid succession. We should evenly mix what I may call Statical and Kinetical comparisons—those which involve states already completed by nature, and those which involve actions that take place in our presence. The comparisons of things—insects, shells, flowers, productions of nature—are of the first kind; experiments in Physics are of the second kind. Set little problems to be solved after the lesson: to compare two things—to do something and describe the result—to watch something and account for what is observed. These, where possible, should sometimes necessitate out-of-door excursions, such as—compare two hills, two cliffs, two rivers, the two banks of the same river, &c. †

Let us now sum up what we have done. I have shown that, particularly amongst journalists, there are many who yet do not understand the importance of Science in education; but as regards these opponents we best aid the advancement of Science by quietly ignoring them, and proceeding with our work. Secondly, that many have made the mistake of thinking that Science is easy to teach, and easy to learn; whereas there are really great difficulties in its way.

The difficulties must be fairly met by the practical teacher, who must find courage enough to face them with little external aid and guidance. The results that flow from Science teaching for all time will depend on the earnestness and thoroughness with which these difficulties are grappled now. Some of these difficulties would disappear, if some of the new and remodelled schools were placed under command of distinguished Science scholars. Then would Science rank, not as subordinate to so called main subjects, but one of the principal subjects, and would be attacked by the ablest minds. Good Science teachers would necessarily be produced in these schools.

Finally, I have given a few hints with regard to the method of teaching. I may have underrated the extent to which Science has become victorious over inertia, and established itself as a settled branch of teaching. What I have said of the difficulties may daunt some, but will stimulate others. I am of opinion that you are more likely to succeed if told to arm yourself for a difficult task, than if left to face a really difficult task believing it to be easy.

As for the ultimate result, there can be but little doubt. Science will assert itself as an essential and a leading instrument of youthful culture,—as a means of cultivating faculties which no other discipline can reach; and I am sure we shall have real cause for satisfaction if we have helped to make it available before it otherwise would have been.—*The Educational Times.*

\* Weigh it; weigh equal bulks of other liquids; weigh solids in it; pour it into a bent tube; pour oil in one leg of the tube, and water in the other; dissolve salts in the water, and examine the solution; mix it with powders that do not dissolve—sand, chalk, box-wood sawdust—in a glass beaker, and examine the sediments; trace these properties of water in a river, in the waves of the sea-beach; trace the effects of water that has passed away in the street, or a garden—after a storm, for instance, on the hill-side. Filter the water; distil it. Decompose it by an electric current, and examine the properties of the gases that then result.

† The lecturer here gave a lesson for young children, consisting simply of experiments, and questions on them; and then treated the same subjects in a way to suit the second or third course,—predicting from some established law what ought to take place, and then appealing to experiment to test the truth of the prediction.

### Joseph Lancaster.

(From the Schoolmaster.)

Much of a man's success in life depends on the time when he is born. Had Joseph Lancaster been born fifty years sooner than he was, he would have kept a school in his front parlour; he would have been liked by his boys, and praised by their parents for "getting them on wonderful." Had he been born fifty years later than he was he would have been a certificated schoolmaster; he would pass ninety-nine per cent. at his Government examinations (and would never be tired of telling people so); and he would write letters to THE SCHOOLMASTER saying that he managed his school without corporal punishment. Had he made his entry upon life's stage on either of the hypothetical dates I have mentioned, he would, doubtless, have played a very worthy part, although he would not have made much stir in the world; but, appearing on the scene when he did, he occupied a larger place in the public mind than any other schoolmaster ever has; and partly through his merits, of course (for the teachers, his contemporaries, did not achieve his success), but partly through the fortunate accident of his being born when he was, he became the originator of a movement which has ended in giving England the greatest and most beneficent product of modern civilization—a national system of education. Our institutions have this feature strongly marked,—they do not, Minerva-like, spring into perfect existence from a creator's brain; they are not made, they grow; and the history of the growth of popular education begins with Joseph Lancaster. How far the growth is due to him will be seen from a consideration of some of the chief events of his life. For an account of these events one has to search far and wide; because, although Lancaster has found three biographers, they seem to vie with each other in leaving out of their works everything one would care to find in them. In the case of two of them, this is probably because they did not know enough about their subject. In the case of the third, it was not because he was ignorant of the facts (for the third was Lancaster himself), but partly because he had no literary ability, and could not convey what he knew; and partly, perhaps, because he had a larger autobiography in view, and was reserving his facts for that. I believe it is now impossible to write a good life of Lancaster unless the author could invent facts—discover them he could not. I have read everything which Lancaster wrote, and as many of the numerous books, pamphlets, and articles written about him as I could lay hands on; but I have only arrived at the Socratic beginning of knowledge of my subject, a due appreciation of the fact that I know (comparatively) nothing about it.

I can, however, state with something like confidence, that Lancaster was born; and all his biographers agree in saying that his birth took place in Kent street, Borough, on November 27th, 1778. Having said this they wander off into a tedious account of the precocious piety of his childhood—an account which makes the reader expect that, according to honoured precedent, the juvenile saint will die early. One would have been ready to forgive them if they had been animated by a wish to say everything which could be said about their hero; but this is far from being the case, for wherever one would like to have detailed information, they are either altogether silent, or make the most vague and uncertain statements. I should like to know something for instance, about the education of a man who had so large an influence upon the education of his country,

but I can only find the subject mentioned twice, and the assertions made concerning it contradict each other. From the edifying stories told of his early perusal of the Bible, I conclude that he had learnt to read when very young, but that he was never more than half educated is certain. His writings are full of errors in grammar, and of clumsy and ambiguous expressions. The reader cannot help feeling that the writer was not a man of culture.

There is one story of Lancaster's childhood which deserves mention, because it shows that at an early age he had developed two of the qualities which characterized him through life—enthusiasm and imprudence. When he was fourteen he came across Clarkson's "Essay on the Slave Trade," and this so impressed him that he determined to go out to Jamaica to teach the blacks to read the Scripture. Without telling anyone of his attention, alone, and with only a Bible, a Pilgrim's Progress, and a few shillings in his pocket, he set out to walk to Bristol. Having reached this place he was received on board a vessel about to sail for America. He then wrote to his parents, and steps were taken to secure his return home. Soon after this he turned Quaker, and thus frustrated the intentions of his friends (who were Calvinists) that he should study for the ministry. During a part, or the whole, of the next four years—I cannot obtain any more definite information—he was assistant master in a boarding school. At the age of twenty, however, he started a school of his own. His father lent him a room in his house, while he himself made the necessary desks and forms. Thus a small house in a mean street in the Borough was, in 1798, the birthplace of our national system of education. It would be interesting to have full details of the infancy of a child destined so soon to grow into a giant, but the biographers of Lancaster, according to their habit of copious silence in the wrong places, do not vouchsafe to give us any. The few facts on the subject I have been able to glean lay scattered as incidental statements in controversial works on Lancaster; if the information I have to offer is both vague and meagre, my readers must blame the ignorance of perspective of those people who undertook to write the life of Lancaster—an ignorance which puts in bold outline and large proportions objects which should be in the background, while it gives objects which should occupy a central position in the picture a weak and sketchy outline, and a deep shading. As has been already stated, Lancaster's first schoolroom was in Kent-street. He soon had the pleasure of seeing this filled, and then so overcrowded that he was compelled to remove his school to a workshop. This in its turn soon became too small, and forced to quit it for a still larger room—the only indication of whose locality I can find is that it was "some distance from the paternal house." When this again became too small, the school made its final move (as nearly as I can make out, in 1801) into a room built expressly for it—a room familiar to thousands of the readers of *THE SCHOOLMASTER*, that, namely, in which the Practising School of the Borough-road Training College was, till within a few months ago, held.

In becoming a teacher, Lancaster followed the bent of his genius, for he had the hearty love for children, and the sympathetic, almost intuitive, knowledge of their nature which mark the born teacher. He entered into his work with the large enthusiasm which was so characteristic of him; he thought no labour too hard and no sacrifice too great in the service of his pupils; for them he spent body, mind, and substance, and as much of the substance of other people as he could

persuade them part with. On half-holidays he used to take large parties of his scholars upon excursions around London. On Sundays he used to have forty to sixty of them to tea with him, he providing the tea, and they bringing their own bread and butter. In the winter of 1799–1800 there was great scarcity in London, and the poor suffered fearfully. Lancaster, finding many of his pupils sinking for want of food, or absent for want of clothing, appealed to the generosity of some friends with such success that he was enabled to feed from sixty to eighty till better times arrived. He educated for nothing those children whose parents were too poor to pay the fees. He furthermore had living with him (for he seems to have set up a house soon after he commenced school-keeping) several orphans, to whom he thus stood *in loco parentis* in more than the legal sense of the words. It will be seen that Lancaster was a man of rare unselfishness; it is a pity to have to add that he was also a man of rare imprudence. Nature endowed him with a princely spirit; he forgot that fortune had not endowed him with a princely income. But if he had been nothing more than a kind-hearted schoolmaster he would, like the hundreds of other kind-hearted schoolmasters scattered over the country, never have been heard of outside his own district. To understand why he occupied such a large share of public attention we must consider the condition in which he found education and the changes he wrought in it.

We are not, at present, concerned with the education of the children of the wealthy; it will, therefore, be sufficient to say that that was carried on then, as now, by private tutors (generally good classical scholars), or by the great "public schools." These schools are proud of the *prestige* conferred upon them by their antiquity, and are hence very conservative of their methods. They have, therefore, undergone little change. The educational activity of the last years has, however, called into existence a number of schools somewhat resembling the old "public schools," and the windows of these, not being encrusted with the dust of ages, let in a little of the modern light.

The children of the *bourgeoisie* generally received a little of what was called education, in order that they might be distinguished from the "lower orders;" but this was given by people who knew little and hardly taught what they knew. The qualifications of a teacher were that he should know his letters, and should have failed at everything; that he should have a plate of brass on his door, and plenty of the same metal in his face. If he were asked to describe his method of instruction, he would be in the condition of Canning's knife-grinder, when asked for his story—

"Story! God bless you! I have none to tell, sir."

He greatly resembled Miss Rebecca Sharp, whose biographer says. "With the young people [her pupils] ..... her method was pretty simple. She did not pester their young brains with too much learning, but, on the contrary, let them have their own way in educating themselves; for what instruction is more effectual than self-instruction?" When one considers the hollow humbug of many of the "Academies for Young Ladies" at the present day, the character of their predecessors eighty years ago may be easily guessed; in fact, the matter resolves itself into a proportion sum: What was the value of the education given in certain schools in the eighteenth century, if the value of that given in similar schools in the nineteenth be  $x$  (an unknown quantity indeed, and one which, it is to be feared, does not always stop short of being a negative)?



For the children of the poor there were, here and there, charity schools, in which the education was almost confined to the Church catechism, especially to that part of it which enjoined the learners that it was their duty to "submit" themselves to all their "Gouverneurs, teachers, spiritual pastors and masters," and to order themselves "lowly and reverently" to all their "betters." There were also a few schools similar in character to those of the *bourgeoisie* just described, but, of course, charging a lower fee, and, if possible, giving a worse education. To these schools the more respectable of the working classes sent their children. A vast majority of the children of the poor never went to any school, but, till they were old enough to be sent to work, ran about the streets in the towns, picking up all the evil to be found there, and in the country, where their faculties were not even quickened by the sights and sounds of the streets, sank into stupidity too dense for penetration.

The respectability of England saw nothing undesirable in this state of things; indeed, the squires and parsons, and the people who thought the opinions of squires and parsons oracular, started with holy horror at the idea of the education of the poor. Most of the arguments which they urged against it are even now faintly echoed by the anility (male and female) of the land, but there was one which is no longer heard, and it is very curious as showing what was meant by *education* in those days. The *Edinburg Review* for October, 1807, says: "It is the fashion now to say that a mode of education is provided by the State, and that the children may listen to the oral instructions of clergymen in the pulpit!" and contemporary writings show abundantly that this was considered one of the strongest arguments of the opponents of popular education. Even Dr. Bell, a man whose only claim to public notice was that he was an educational reformer, says: "It is not proposed that the children of the poor be educated in an expensive manner, or even taught to write and cipher. Utopian schemes for the diffusion of general knowledge would soon..... confuse the distinction of ranks and classes of society on which the general welfare hinges, and the happiness of the lower orders, no less than that of the higher, depends." Of course there were persons who felt interested in the education of the people and tried to promote it. The mere fact of its being opposed is proof of this; for as a cart raises dust only when it is in progress. The great bar to it was its costliness. The fees were the only source of income to a school, and a teacher could only live by having fees too high for the poor, or a school so large that he could not manage it; the objects of a reformer, therefore, would be at the same time to improve the quality of education and lessen its cost.

Such, then, was the state of education in England when Lancaster first became a schoolmaster. As I have already stated, his success was so great that in three years his school outgrew three rooms. With the growth of his school he had to face a great difficulty: his scholars were more in number than he himself could teach, while their fees would not enable him to engage an usher. He had, therefore, to do what had sometimes been done before—he had to employ those children who knew something in teaching those who knew less. Being a man of great fertility of invention and power of organization, he gradually reduced the plan of using children as teachers to an elaborate system. While he was doing this, other improvements suggested themselves to him; so that by the time his school was housed in the Borough-road he had developed a new system of education, of which it will now be my duty to give some account.

The schoolroom was a "long square." Right across the upper end of it was a platform. Facing this, all the way down the middle of the room were rows of desks, the sides of the room having no furniture. So much for the shell; we come now to the kernel.

When a new school was opened, the first thing to do was to classify the children presenting themselves. It is hardly creditable that a man writing in the year 1803 should have to urge this as an improvement in education. He who would now advance arguments to prove the advantages of classification would also advance arguments to prove that the whole is greater than its part; yet Lancaster had to use all his reasoning powers in denouncing the "common plan," and in proving that the proficiency of children would "be nearly doubled by being classed and studying in conjunction." But his classification was different from that now general, for he has a distinct classification for each subject, so that a boy might be in the first class for reading and in the fourth (or any other) for arithmetic. This division, of course, required that the whole school should study the same subject at the same time. There were about ten classes, but these were subdivided among monitors, each monitor having from half-a-dozen or a dozen of children.

The very essence of Lancaster's system was that it was monitorial. The master seems to have been left nothing to do except to superintend, organise, reward, punish, and breathe his spirit into the school. When a child entered, a monitor classed him; while he remained a monitor taught him; when he was absent a monitor inquired after him; a monitor periodically examined him; and when he made progress a monitor promoted him. In short, it would be difficult to mention a duty for the performance of which there was not an appointed monitor. The position of monitor was much coveted, for everything was done to make it one of honour. It was a reward for good conduct and rapid progress, and entitled its occupier to special privileges. Each monitor wore on his breast a leather ticket, on which was printed in gilt letters, "Monitor of the first class," "Reading monitor of the second class," &c. For each of these tickets there was a nail fixed in the wall. When school met the monitors took their tickets from the nails; the tickets left on the wall indicated the monitors absent, for whom a monitor-general appointed substitutes.

Lancaster introduced new methods of teaching reading. Children learning the alphabet one day imitated a monitor in forming letters in sand laid out on the desk before them (a specially constructed one). The next day they had to point out on a card the letters they had been taught to form. Lancaster's pupils could not afford to buy reading-books, and he could not afford to buy any for them. Just, therefore, as he had the alphabet painted in large type on a card, he had each of the lessons of a reading-book printed. No books were then needed. He calls this invention (for invention it was) "a method of teaching to spell and read, whereby one book will serve instead of six hundred books."

To save the expense of pens, ink, and paper, he introduced the plan of writing on slates, copy-books being used only in the upper-classes, and there only occasionally.

He also invented what he called an "improved method of teaching spelling by writing." This was what is now known in schools as "dictation," with the important exception that (as far as I can find) there was no provision for correcting what the children wrote.

In arithmetic, too, he invented a new method. He found that his children's knowledge of the subject was



so small, and if he insisted upon monitors knowing what they had to teach he would not have enough of them; so he hit upon a plan whereby they could teach what they did not know. When numeration had been learnt in the ordinary way, the monitor was provided with a key, in which the sums were not only worked out, but every step of working stated in full. Thus: suppose the sum were — "Add together 426, 153, and 825," the monitor would read thus from the key: "5 and 3 are 8, 8 and 6 are 14, set down 4 and carry 1," &c., the children watching the sum on their slates, and trying to follow the process as read out by the monitor.

The motive to which Lancaster appealed in the conduct of his school was emulation. As has already been stated, each monitor wore a badge of honor. The top boy in each class also wore one, consisting of a ticket bearing the word "Merit." Each boy in the class wore a ticket, on which was the number of his place in the class. There was a constant "place-taking," and consequent exchange of tickets. It would take too long to explain how the same spirit of emulation was fostered in every part of the school work. But an approving or disapproving conscience was not the only recompense of well or evil-doing. There were tangible rewards and punishments, and these formed one of the most elaborate parts of an elaborate system. It must, however, be said that stress was laid, not on the value of the reward or the pain of the punishment, but on the honor of the one and the shame of the other. The prizes were toys of all kinds, pictures, books, &c., and these were given with a lavish hand. For good conduct, progress, &c., tickets were awarded. These bore a fixed value, and were a kind of paper currency convertible into prizes. Lancaster says: "It is no unusual thing with me to deliver one or two hundred prizes at the same time. And at such times the countenances of the whole school exhibit a most pleasing scene of delight, as the boys who obtain prizes commonly walk in procession round the school holding the prizes in their hands and a herald \* proclaiming before them "These good boys have obtained for going into another class." The honor of this has an effect as powerful if not more so than the prizes themselves." Lancaster had one way, worthy of consideration now, of rewarding children who distinguished themselves by exceptional progress or good conduct—he wrote "commendatory letters" to their parents. He had an order of merit, open only to those "who distinguished themselves by proficiency in their studies, or in the improvement of others, and for their endeavors to check vice." Those who belonged to it wore a silver star suspended round their necks by a plated chain.

Lancaster's punishments were most curious. As already said, they were intended to create shame rather than pain; indeed, in the whole of his writings, I find no mention of caning or birching. Punishments which give mental rather than bodily pain lose their force when they become familiar, and, therefore, Lancaster varied his frequently. For inattention, one punishment was the log—a piece of wood weighing from four to six pounds. Wearing it around his neck the culprit was set to work. "While it (the log) rests on his shoulders the equilibrium is preserved; but on the least motion one way or the other it is lost, and the log operates as a dead weight upon the neck. Thus he is confined to sit in his proper position and go on with his work." When the log was unavailing, the legs of the offender were fastened with wooden shackles. Being then only

able to move with a very slow measured pace, he was ordered to walk round the room till, becoming tired, he begged for liberty and promised amendment. Occasionally boys are put up in a sack or in a basket suspended to the roof of the school in sight of all the pupils, who frequently laugh at the birds in the cage." Frequent or old offenders are yoked together sometimes by a piece of wood that fastens round all their necks, and thus confined they parade the school walking backwards." This punishment was called "the caravan." "When a boy is disobedient to his parents, profane in his language, has committed any offence against morality, or is remarkable for slovenliness, it is usual for him to be dressed up with labels describing his offence, and a tin or paper crown upon his head. In that manner he walks round the school, two boys preceding him and proclaiming his fault." For truant playing the offender had a card hung round his neck bearing the word "truant," and he was then tied to a post in the school-room. When the offence was often repeated the culprit was sometimes "tied up in a blanket and left to sleep at night on the floor in the schoolhouse."

There now remains but one subject to speak of in connection with Lancaster's system, and that is religious education. Lancaster was constitutionally religious, but though he was sincerely attached to religion, regarded as an act of devotion, he was very liberal in his views of it regarded as a system of theology. While, then, he tried to imbue his scholars with a religious spirit, he would teach them no dogmas distinctive of any sect. He simply tried to make them good men, leaving it to others to make them good Churchmen, good Baptists, or good Quakers. The millions of England were growing up in ignorance—ignorance bringing it its train brutality and vice. Education not being then considered a State duty, the only organisations available for the work were the religious sects; but these could not see in the instruction of the poor anything except a means of giving a certain theological bias to the minds of the young; they had not learnt to regard it as in perfect harmony with the spirit of the Christianity they professed in common. Lancaster contended (and his earnestness marshalled into order his usually confused thoughts and gave clearness to his usually ambiguous style) that education was a high and holy thing, of infinite value for its own sake. He therefore implored the warring sects to make a truce, and join in carrying on the great and good work—a work they should undertake no less as Christians than as patriots. To labour for a common end they would have to stand on common ground, and, said Lancaster, "The grand basis of Christianity alone is broad enough for the whole bulk of mankind to stand on, and join hands as the children of one family." Elsewhere he says, addressing the sects: "You have been disputing whose influence should be greatest in society while a national benefit has been lost, and the poor objects of it become a prey to vice.... A national evil requires a national remedy; let not this any longer be delayed; let your minds expand free from every narrow principle, and let the public good be the sole object of your united efforts." In Lancaster's school, therefore, the education given was religious and unsectarian. Those who love education for its own sake, and who also love religion, owe him much for practically proving that the two could be united. Eighty years ago they were wedded by a Quaker ceremony, but their union was looked at by many as unlawful and unnatural; eight years ago the union was formally recognised by the High Court of Parliament as having been both legal and beneficent.

In giving this rough outline of Lancaster's school, I

\* This does not mean that the boys hold the herald in their hands. Lancaster often fails to say what he wants to.

am describing only the body ; the soul was Lancaster himself. He entered into his work with immense enthusiasm, and he succeeded in warming his pupils with a part of the zeal which was burning him up. He made them think, and, what is far more, he made them feel that the honour of the school depended upon them individually, and that the child who committed a fault sinned not only against good morals and good manners, but also against the reputation of the school. There were thus not one, but a thousand, striving for the excellence of the institution, and rejoicing in its progress.

The faults of Lancaster's system were many and obvious. Just as in a corrected exercise the erasures show where the original was wrong, and observation of the points in which our system differs from his will indicate where the experience of three quarters of a century has been able to amend the latter. Monitors, though of considerable service in giving a good "tone" to the school, were very imperfect instructors. They could not teach what they did not know ; many of them could not teach what they did know. Still even the most hostile of Lancaster's critics admitted that the results produced in his school were surprising. They judged it by the other schools of the day, and no wonder that, measured by such a standard, it should be considered admirable. The pupils of Lancaster were kept constantly employed, and constant employment, though only under a monitor, is sure to produce better results than intermittent activity (like that of a clock bell which rests an hour and works a second) under a master. But perpetual activity was no less the secret of the progress than of the good order of Lancaster's school. One of the most bitter of his detractors says : " In this respect (that is, in respect to order) Mr. Lancaster's school is quite a prodigy considering the vast number of scholars it contains." I am afraid that we moderns would not think the order prodigious ; the discipline was doubtless good, but the din was deafening. Here is a little unexpected evidence on the point. Speaking at a *soirée* of the British Teachers' Association, on the 25th of January, within the walls of what is left of Lancaster's schoolroom, Mr. Baines, of Carshalton, said : " I cannot help comparing the aspect of this room with what it was thirty-seven years ago. Then I was a student here ..... Round the room were six hundred or seven hundred boys in little drafts, singing 'l-e-a-p, leap—to jump.' The Babel was such that I remember on one occasion trying if I should be heard singing 'Black-eyed Susan.' I sang, and no one noticed me." Mr. Baines quietly added, " I was monitor of order at the time," a remark which was followed by shouts of laughter. It is true that Lancaster was not master then, but the school was carried on according to his system by a teacher probably as able as he.

I have alluded only to one of the defects of the monitorial plan ; many others might be pointed out. Nor was this the only part of Lancaster's system which was faulty. The method of teaching arithmetic, for instance, one would fancy to have originated in the famous Academy of Projectors at Lagado, which proposed to extract sunbeams out of cucumbers, to calcine ice into gunpowder, and to manufacture poetry and philosophy, arts and sciences, by machinery. Still it was thought wonderful at the time. A very able writer in the *Edinburg Review* for November, 1810, says :—" It is manifest that any rule in Algebra may be communicated by the same process, from the simplest to the most intricate and refined ; from the addition of two quantities to the methods of infinite series and fluents. Every part of geometrical science may be taught by similar means, from the first theorem in Euclid to the sublime

propositions of Newton and Laplace..... By a few simple additions to this machinery, the method may be made to embrace even other branches of knowledge, and in short we do not hesitate to affirm that it is applicable, or may soon be applied to the whole circle of human knowledge ..... This method may, therefore, most truly be pronounced a capital discovery in every point of view ; and we have little doubt that it will speedily be extended from the sciences to the arts, which seem all to admit of being taught upon similar principles."

The system of rewards and punishments, be it good or be it bad, was founded on a thorough knowledge of the nature of children. It was, however, far too elaborate for this "working-day world." Indeed, Lancaster fell into the error common to inventors of thinking more of the means than the end, of the system than its object.

With all its faults Lancaster's system was a great improvement upon anything which preceded it as the "Rocket" or "Puffing Billy" was upon the stage coach, though it would suffer as much by comparison with the more perfect system of the present day as those primitive locomotives would by comparison with the "Flying Dutchman." He was very proud of it. Indeed, "proud" gives but a very faint idea of his state of mind : he was inordinately vain of it, and promised from its operation as many wonders as a quack doctor does from the application of his *nostrum*. The objects to be attained by an educational reformer were efficiency and cheapness, and Lancaster proclaimed that he had reached both. In a work published in 1806 he says : "The result, as far as it has been attained at present, is that by an entire new system of education one thousand children may be taught in one schoolroom under the care of one master, and a great proportion of these may begin and finish their education in twelve months, the education comprising the art of reading, writing, and arithmetic..... the whole expense not exceeding seven shillings each child for twelve months, and probably may be reduced by the perseverance of the inventor under unmerited opposition to four." The curious thing is, that Lancaster's estimate of his system was accepted even by his enemies. I might make dozens of quotations from their works to support this statement ; one will serve as a specimen. In a sermon preached against Lancaster the reverend speaker says : "A scheme of instruction has been devised of incalculable celerity and of boundless extent ; so cheap that poverty itself may purchase, so easy that dulness itself may comprehend."

Having now given an outline of Lancaster's system, I must return to my history of him. Even before he commenced work in the Borough-road, he had attracted the attention of several Quakers who helped him by paying for the education of the poorest children. When in a better room, and a perfected system, he felt so confident of the support of the public that he determined (in 1801) to make his school altogether free. He therefore posted outside the building the following notice :—"All who will may send their children and have them educated freely ; and those to whom the above offer may not prove acceptable may pay for them at a very moderate price." He soon had a thousand children around him, and he and his school became objects of curiosity. "Foreign princes, ambassadors, peers, commoners, ladies of distinction, bishops and archbishops, Jews and Turks, all visited the school with 'wonder-waiting eyes,' and were equally desirous of carrying home a memorial of the interesting scenes they had witnessed." This caused Lancaster, in 1803, to publish a short account of his system. The school at the

Borough-road was such a success that its supporters wished to see its "picture in little" in various parts of the country. But schools on Lancaster's plan could only be conducted by teachers trained by him; and the demand for such teachers made him, with a characteristic disregard of where the money was to come from, start a training institution. The students were mostly lads from the school, and very badly educated they must have been, but they had caught from their teacher his all-mastering enthusiasm; and, young as they were, they succeeded wonderfully. By the year 1805 the fame of Lancaster had gone forth through all the land, and the king desired to see him. An interview took place at Weymouth. The following is an account of its termination:—"The king said, 'Lancaster, I highly approve of your system, and it is my wish that every poor child in my dominions should be taught to read the Bible; I will do anything you wish to promote this object.' Lancaster said, 'Please, thy Majesty, I can go through the country and lecture on the system, and have no doubt but in a few months I shall be able to give thy Majesty an account where 10,000 poor children are being educated, and some of my youths instructing them.' His Majesty immediately replied, 'Lancaster, I will subscribe a hundred pounds annually; and' (addressing the queen) 'you shall subscribe fifty pounds, Charlotte, and the princesses twenty-five pounds each.'... Lancaster observed, 'Please, thy Majesty, that will be setting thy nobles a good example.' The example was dutifully followed, for in a list of subscribers, published in 1806, I find the names of the king and queen, followed by those of four princes and royal dukes, six princesses and royal duchesses, seventeen peers, and various peeresses, honourables, members of Parliament, &c. Soon after his visit to the king, Lancaster became ill, and was forced to go into the country to rest. While at Watchet, in Somersetshire, it was suggested to him that he should give a lecture on his system. He gave the lecture, which only proved to be the first of many, for in the course of the next two or three years he travelled through the whole kingdom explaining his scheme. Of the effect of his addresses one may judge from the fact that he found it necessary to publish a book of instructions as to the best routine to be observed in starting a school on his plan.

The success of Lancaster raised him troops of enemies. These may be divided into three classes—the friends of ignorance, the friends of the Established Church, and the friends of both. His patronage by the king and nobility, while it increased the acerbity and excited the envy of his foes, made them very circumspect in their method of attacking him; and as "the law was against his being operated upon by fire," some other mode of assault must be found. They accordingly asserted that Lancaster had stolen the details of his system from Dr. Bell, and (as Sir Fretful Plagiary says) had served them "as gipsies do stolen children—disfigure them to make them pass for their own." The system had merits (how could it fail to have when it was invented by a clergyman?) and these it was which caused his sacred majesty and the hardly less sacred nobles to patronise it. It had however, one great and damnatory fault—it did not teach the dogmas of the Church. As to this same fault I have nothing to say, but I must examine how far the charge made against Lancaster of plagiarism from Dr. Bell is true.

Dr. Bell was a chaplain in the service of the East India Company, and in 1789 he became head master of a charity school—the Male Asylum—at Madras. He had been much struck with a mode of teaching by writing in sand practised by the natives of Malabar, and he

determined to introduce it into his school. His assistants, of whom he had four, being grown up, did not take kindly to the innovation, and so he had to teach the new plan to the elder boys, and employ them in turn to teach the younger ones; in other words, he introduced a system of monitors. His monitors, however, did not supersede the assistants; they were created to meet a special difficulty, and used for no other purpose. In 1797, Dr. Bell returned to England, and published, in a pamphlet of forty-eight pages, an account of the methods he had used. He then retired to a living at Swanage. His tract received very little attention, and he did nothing in the matter of education for eight years. Lancaster did not see Dr. Bell's pamphlet till 1800—that is, till he had been carrying on his own experiments for two years. He acknowledged frankly the aid he got from it. He says:—"From this tract I got several useful hints. I beg leave to recommend it to the attentive perusal of the friends of education and youth. I much regret that I was not acquainted with the beauty of his (Dr. Bell's) system till somewhat advanced in my plan; if I had known it, it would have spared me much trouble and some retrograde movements." In 1805, when his system was perfected, and had been displayed at work on a large scale for over four years, Lancaster brought out a third edition of his book. Dr. Bell appears to have been a worthy man, but he seems to have allowed himself to be persuaded that all the credit of Lancaster's work was due to him. He, therefore, after the publication of the third edition of Lancaster's book, brought out a second edition of his own. He suppressed several material facts, and made considerable additions, and in 1809 he published a third edition, when, in spite of suppressions, the pamphlet had swollen to 144 pages. Joseph Fox now wrote—"A Comparative View of the Plans of Education as detailed in the Publications of Dr. Bell and Mr. Lancaster," with the epigraph, "*Palmarum qui meruit ferat*," and maintained that the palm should be borne by Lancaster. This called out a fourth edition of Dr. Bell's work, in which the original 48 pages had become 348. In the following extract, from the number of the *Edinburgh Review* already quoted, the dispute between Lancaster and Bell is calmly and judicially summed up:—"The merit of devising it (the new system) belongs to Joseph Lancaster, although one of its principles had been previously known to Dr. Bell, and exemplified in the school at Madras, but without those other principles which, when taken together, constitute the new system..... To Joseph Lancaster alone belongs the praise of introducing the new system into practice, and enabling mankind to benefit by it, and preparing the way for its universal reception..... The plan pursued by Dr. Bell..... has no one peculiarity which can entitle it to a preference; while, on the contrary, it is deficient in many of the most important points, and especially fails in the article of economy." In another part of the same article the writer says:—"We deeply regret to find that Dr. Bell has not had the prudence and good sense—we say nothing of generosity or courage—to allow this simple-minded and most deserving man (Lancaster) a merit which he cannot by any stretch of self-complacency pretend to dispute with him. And herein lies the charge which we are unwillingly compelled to admit has sunk most in our minds against that reverend person. We could have pardoned the senseless distinction between teaching writing and reading, and passed over the alarm lest the minds of the lower orders, 'who are doomed to the drudgery of daily labour,' should be too much elevated by instruction..... But when we find Dr. Bell printing book after book to explain his system—years and years after Mr.

Lancaster had, by the most unwearied exertions..... succeeded in carrying every one principle of the scheme into *complete practical effect*, and in spreading the beneficial use of it over the whole island; and when in those books Dr. Bell does not even make mention of Mr. Lancaster, offers him no acknowledgment for his corporal fatigues—we will go no further; tenders him no thanks for having (we will call it) taken the trouble of adopting and disseminating his doctrines; presents to him no gratulations upon the unhopèd-for success which had attended his preaching and practice of those doctrines—nay, deigns not even to record the fact so important to his *own fame*, that the Madras system had wonderfully prospered in England under the management of one Joseph Lancaster..... truly this silence is too unnatural even to be mysterious, and in our ears—do all we can to shut them, to stop them up with the remembrance of the man's former merits—it loudly rings a distinct charge against the reverend gentleman of pitiful jealousy towards one whom he may be desirous of thinking his imitator, but towards one whom he thus betrays the wounded feelings of a disappointed rival." The controversy between the friends of Bell and Lancaster was fierce and bitter enough, but we can look at it with philosophic unconcern, for we can see that the antagonism was of immense service to the cause of education. The clergy were frightened at the success of Lancaster's plans, and, as it was evident schools must spring up all over the land, nothing remained for the clergy but to get the management of them into their own hands. In Dr. Bell they had ready to hand a means whereby they could "at once dole out to the lower orders that lower degree of knowledge which best befits their station, and that peculiar kind of instruction which most exactly suited their own interests and opinions." The consequence was the establishment of the National Society for the education of the poor in the principles of the Established Church. There were thus two educating societies where, without the rivalry of Lancaster and Bell, there would only have been one.

I have said that Lancaster's enemies made two charges against him: the first, that any part of his system which was meritorious was stolen from Dr. Bell; the second, that the part which was admitted to be his own—the unsectarianism of the religious instruction—was in awful evil. I have dealt with the first charge. It would be difficult for us to apprehend the rancour with which he was attacked in the second, had we not in these days heard the education given in the schools of the London Board described as "godless." Deacons and archdeacons thundered at him from the pulpit, fools and fanatics denounced him through the press. One of the first to raise the howl against him was Mrs. Sarah Trimmer—a lady who was tolerably well-known as a writer of schoolbooks and "goody-goody" stories. To give my readers a specimen of the bigotry and ignorance with which he was attacked, I will make a few extracts from this respectable lady's book. She says: "In answer to Mr. Lancaster's observation that '[education] ought to be a national concern,' I may appeal to the Act of Uniformity for the proof that, from the first establishment of the Protestant Church in this kingdom, education has been a national concern." Sydney Smith, in the *Edinburgh Review*, criticised the work in an article, \* where, as usual with him, the shafts of sense were pointed by wit. On the remark I have just quoted from Mrs. Trimmer, he says: "If there are millions of

Englishmen who cannot spell their own names, or read a signpost which bids them turn to the right or left, is it any answer to this deplorable ignorance to say there is an Act of Parliament for public instruction?—to show the very line and chapter where the King, Lords, and Commons, in Parliament assembled, ordained the universality of reading and writing, when centuries afterwards the ploughman is no more capable of the one or the other than the beast he drives?"

In speaking of Lancaster's system of rewards and punishments, instead of pointing out the real and palpable objections to it, she makes such remarks as the following:—"If the star which in this kingdom is the appendage of high nobility be adopted by him as the insignia of his order of merit, surely the emblem of Majesty [in capitals] should not be made a mark of disgrace and ridicule. Besides, it should be remembered that the Saviour of the world was crowned with thorns in derision, which is another reason why the punishment is improper for a slovenly boy!"

She could not get over the stars, for in another part of her book she says:—"When one considers the humble rank of the boys of which common-day schools and charity schools are composed, one is naturally led to reflect whether there is any occasion to put notions concerning the origin of nobility into their heads, especially in times which furnish recent instances of the extinction of a high and ancient nobility in a neighbouring nation, and the elevation of some of the lowest of the people to the highest stations. Boys accustomed to consider themselves as the nobles of a school may in their future lives, from a conceit of their own trivial merits, unless they have very sound principles, aspire to be nobles of the land, and to take place of the hereditary nobility."

To this Sydney Smith says:—"For our part, when we saw these ragged and interesting little nobles shining in their tin stars, we only thought it probable that the spirit of emulation would make them better lawyers, ushers, tradesmen, and mechanics. We did, in truth, imagine we had observed, in some of their faces, a bold project for procuring better breeches for keeping out the blasts of heaven, which howled through those garments in every direction, and of aspiring hereafter to greater strength of seam, and more perfect continuity of cloth. But for the safety of the titled orders we had no fear; nor did we once dream that the black rod which whipt these dirty little dukes would one day be borne before them as the emblem of legislative dignity, and the sign of noble blood."

I had marked for quotation many other curious and amusing passages from Mrs. Trimmer's book, but want of space compels me to omit them. As when a cat howls upon the tiles her cry is taken up by all the "Toms" in the neighbourhood, so the wail of Mrs. Trimmer raised wails responsive from the upholders of the Church. Thus in June, 1806, the Rev. Archdeacon Daubeny, in a charge delivered at Sarum, said that Lancaster's system would "ultimately lead to general infidelity," and that as the plan spread "so far must Christianity in proportion decline." "The evil to be apprehended from the public support of a system which professedly rejected the established religion was the destruction of all religion." I have not room to quote even the titles of the works against Lancaster which followed the publication of the venerable archdeacon's charge. I will only give two as a "taste of their quality":—"A letter....." in which the "religious part" of "Mr. Lancaster's system" is "shown to be incompatible with the safety of the Established Church, and in its tendency subversive of Christianity itself: by John

\* The king was so pleased with this article that he made Sir Herbert Taylor read it twice to him.

Bowles, Esq.;" and "The Crisis of Religion: a Sermon ..... by the Rev. E. W. Grinfield, M.A." Still the outcry against Lancaster produced little effect; the British school, like the British oak, seemed only to be the more firmly rooted by adverse winds. The charges made against Lancaster bore a strong resemblance to those made "in these last days" against the School Boards. He, like them, was charged with over-educating the poor, and with giving them "godless" instruction; and the outcry against him, as against them, was never popular: it was the howl merely of interested persons.

As his system spread, Lancaster's expenses increased. The free school for a thousand children at the Borough-road, the training college, the lecturing tours, all involved an outlay of money; and, as Lancaster was not the kind of man to sit down and count the cost before beginning to do anything, he found that in 1807 he was, notwithstanding liberal support from the public, over £3,000 in debt. He was arrested, and taken to a sponging-house. Failing bail, he was removed thence to the King's Bench Prison, but his evident honesty and his earnestness so impressed the bailiff who arrested him, that he himself became security! and Lancaster was discharged. One of his friends—Joseph Fox—drew bills for the amount of the debt, and they were accepted by another friend—William Corston—and duly honoured when they became due. The supporters of Lancaster now saw that if his system was to prosper, he himself must be deprived of any share in the management of its finances. Thomas Sturge, William Corston, Joseph Fox, William Allen, John Jackson, and Joseph Forster, accordingly, on March 1st, 1808, formed themselves into a committee of trustees. This was practically the establishment of the British and Foreign School Society. Lancaster's life work was now done; he invented a system of education which, whatever flaws the experience of eighty years may discover in it, was immeasurably superior to anything which preceded it; he had practically exemplified its working on a large scale; he had, by writing and lecturing, been instrumental in starting many schools; he had established a seminary, to provide for those schools teachers imbued with his spirit and acquainted with his plans. Now, the carrying on of the system was undertaken by a body of men whose love of education, though ardent as his, was tempered by business habits and a knowledge of the world. Had he, therefore, died now, his life would have been, dramatically, complete; but he was destined—I would almost say "doomed"—to live thirty years more. All the movement and passion of his *role* had been crowded into the first part; during the second he lagged superfluous on the stage. Since I have to do with him only as an educationalist, and his work as an educationalist was done when the British and Foreign School was established, I shall tell the remainder of his life in a life in a few lines. He carried on the school and college at the Borough road, delivered lectures, and brought out new editions of his works, till 1818, when he emigrated to America. After experiencing there many freaks of fortune—poor, neglected, and forgotten, he was run over in the streets of New-York, and died on October 23rd, 1878.

It is difficult to mete out to him the exact amount of praise to which he is entitled, for while our national system of education, beyond a doubt, is the result of the movement commenced by him, it is hard to decide how much the result is due to him, and how much to fortunate accidents for which he deserves no credit. There was, first, the fortunate accident referred to at the beginning of this article—that, namely, of his being

born at a time when the most enlightened of his countrymen were beginning to see that the disgraceful ignorance of the people was a constant source of weakness and danger—when, therefore, there were many prepared to welcome any plan which promised to place an efficient education within reach of the poor. Then there was the fortunate accident (if, indeed, "accident" it may be called) of his being a Dissenter and a Quaker; for as a Dissenter he would be unwilling to propagate the tenets of the Established Church, while, as a Quaker, he would not be anxious to propagate his own. He would thus, of course, take up ground which might be occupied by all religious sects—their common Christianity. Then there was the fortunate accident of the existence of Dr. Bell; so that when the liberality of Lancaster aroused the indignation of the clergy, they had in Dr. Bell a weapon ready to their hands wherewith to combat him. Still, when every allowance has been made for happy circumstance, we must give Lancaster credit for much ingenuity in inventing a system of instruction, and for much enthusiasm in carrying it out. He did not build the great temple of national education, which is the chief ornament of our age, but he close the site, and dug the foundations broad and deep. He may not deserve to have his name graven above its portals, but he is certainly worthy of a place in the memory of each one of us its priests.

DAVID SALMON.

## SCHOOL EXAMINATION.

### McGill Normal School.

#### DISTRIBUTION OF DIPLOMAS.

A very large number of people chiefly composed, however, of ladies, assembled at this school yesterday afternoon, 25 June, to witness the twenty-first annual distribution of teachers diplomas.

The Hon. Mr. G. Ouimet, Superintendent of Education, occupied the chair, and there were also on the platform the Hon. Mr. Ferrier, Dr. Dawson, Profosors Hicks, Cornish, McGregor, Robins, and Andrew.

Principal Hicks, Messrs. Lund and Baynes, Dean Bond and Dr. Baker Edwards.

Dean Bond opened the meeting with prayer, and after the Hon. Mr. Ouimet said a few words in French, he called on Principal Hicks to read the annual report, which ran as follows:—

#### REPORT.

At the close of the Session of 1877-78 of the McGill Normal School, the duty devolves upon me of presenting the annual report.

During the past year we admitted into the school 135 pupils of whom 29 were males, and 106 females. Of these pupils 55 were from country districts.

Our Academy Class received 12 of these pupils, the Model School Class 44 and the Elementary Class 82.

According to the rules of the school, the students underwent the semi-sessional examination at Christmas, 1877, which reduced the number in the insti-



tution to 105, and now, at the close of the session, out of 104 who have undergone the final examination, I am able to recommend 84 to receive Normal School diplomas. Of these diplomas, 12 are for academies, 26 for model schools, and 46 for elementary schools.

Of those who received diplomas at the close of the session 1876-'77, 75 in number, 33 returned to obtain a higher certificate, and nearly the whole of the rest are now teaching in the schools of the Province.

I should add here that it is not often now that our students content themselves with the lower diploma, and that since the opening of the school the proportion of those entering the institution who remain more than one session has been gradually increasing, showing, I am led to believe, on the part of their friends, a better estimate of the value of Normal School training than used to exist some years ago.

I have endeavored to, as much as possible, communicate with those of our former students who have charge of positions in the country, and it is satisfactory for me to be able to say from my own means of information, and, also, from the Reports of the Inspectors of Schools, that they seem to be most beneficially carrying out the objects contemplated when the Normal was set on foot.

I am desirous of calling attention especially to the fact, that during the past year, including the University students taking our diplomas, 34 young men have entered our school, a much larger number than usual, and I have every reason to believe that their professional career, in common with that of the rest of our pupils will be a source of permanent benefit to the province.

The appointment of Mr. J. Hicks to aid me during the past two Sessions in the work of lecturing has been very beneficial, and has enabled me to give my attention to other subjects, equally, if not more, important to the welfare of the School. It must be borne in mind in connection with this, that the normal school is a public institution to supply a constantly recurring want of the community, and that the Principal at any time during the day may be called upon by those who may wish to avail themselves of its advantages, either in the way of procuring teachers for schools, or of obtaining information on school matters generally, and that, as those who apply are, in most cases, from the country, the business they have in hand requires almost invariably immediate attention. Independent of this, however, I must state, that as our pupils are required to devote half of their time in teaching in the model or practising schools, I have felt that, although the supervision maintained by the teachers of these schools was of a most valuable nature, it was but right that I should by frequent visits show an interest in this very essential part of their training. The assistance afforded this session has enabled us to do this to a much greater extent than formerly. The recent enlargement of the school building has been very useful to us during the past session,

and has added much to the convenience and comfort of our students. It has afforded us an opportunity of fitting up a laboratory for the use of the lecturer on Chemistry, who, in consequence, has been enabled to carry out a course of practical chemistry, which was totally impracticable under the old arrangement of the class rooms. In the Model Schools for boys and girls, the addition of three rooms to each, has led to such modifications of the daily work as must be beneficial alike to the pupils in the two departments and to the students in training, for whose instruction in the art of teaching these schools were originally established. The Primary Department still needs some additions and alterations. A specification of these has been submitted for consideration by the committee of the schools, and, should they be carried out, they will materially increase the usefulness of this very necessary part of our institution.

In the course of the session I received a letter from a member of the commission charged with the preparation and direction of an educational exhibition in connection with the Exposition to be held at Paris during the present year, requesting me to send to the Department of Public Instruction, Quebec, some information respecting the McGill Normal School. In compliance with this request, and in conformity with the printed suggestions, as far as time would admit, I prepared a brief history of the school since its foundation, which I forwarded as desired, together with specimens of pupils' work, complete sets of text books, and other information, which I thought might be of use to carry out the object intended.

In conclusion, I have as usual, to report that our Model Schools continue to be most satisfactorily carried on, and that they are at all times filled with an intelligent class of pupils.

Mr. F. W. Hicks, M. A., has charge of the Boys' department; Miss A. Swallow, of the Girls' department, and Miss L. Derick, of the primary school.

I must observe here, that the teachers have double duty to do; on the one hand to maintain the efficiency of their respective schools, and on the other, to supervise and direct the students of the Normal School, who are daily engaged with the instruction of classes entrusted to their care. It gives me great pleasure to state that in both respects they faithfully discharge the duties devolving upon them.

To the gentlemen who aid me in the work of instructing the students of the Normal School, I have to return thanks for hearty co-operation, and also for the general interest they take in those who come under their teaching. I am well aware that the students appreciate the value of their instruction and give that attention which befits those who are themselves learning to become teachers to others.

Every Thursday during the Session, the pupils of the School have received religious instruction from the ministers who have kindly attended for that purpose, and we have reason to be thankful to those gentlemen for their voluntary, and at the same time, valuable services.

To the Committee of the Normal School, and the



chairman, Mr. Dawson, I continue to be indebted for the careful consideration of all subjects brought under their notice, and, also for an earnest desire to maintain the thorough, efficient, and well being of the institution.

The Hon. Mr. G. Ouimet then distributed the diplomas to the following successful students :

## UNIVERSITY GRADUATES.

1. Calvin Amaron, of Berthier, P. Q. ;
2. Salem Bland, of Montreal ;
3. James T. Donald, of Goderich, Ont. ;
4. John H. Graham, of Montreal, Q. ;
5. Rich. El-on Rexford, of Montreal.

## ACADEMY DIPLOMAS.

1. Henry H. Curtis, of Warden, P. Q., Dufferin Silver medal and hon. men. in Mental Philosophy, Greek, Latin, Geometry, Trigonometry and Mechanics.
2. George H. Howard, of Compton, P. Q., Dufferin Bronze Medal and hon. men. in Mental Philosophy, Elocution, French, Greek, Latin, Geometry, Trigonometry and Mechanics.
3. Elizabeth Binmore, of Montreal, hon. men. in Mental Philosophy, Greek, Latin, Geometry and Trigonometry.
4. Louisa Norris, of Montreal, hon. men. in mental Philosophy, Latin, Geometry and Trigonometry.
5. Lillian Robins, of Montreal, hon. men. in Mental philosophy, Greek, Latin and Geometry.
6. Jessie Ross, of Montreal, hon. men. in Elocution, French, Instrumental Music, Mensuration, Latin and English Grammar.
7. Mary A. Williams, of Montreal, hon. men. in Geography, Eng. Grammar, Fug Literature, French and Geometry.
8. Margaret Seath, of Montreal, hon. men. in Elocution, Geometry and Book-keeping and object lessons.
9. Jessie Le Beau, of Montreal, hon. men. in Geography and Latin.
10. Sarah Shanks, of Quebec, hon. men. in Education, Eng. Composition, French, Geometry, Latin.
11. Elvira Hilton, of Hamilton, Ont., hon. men. in Elocution.
12. Samuel Rondeau, of St. Elizabeth, P. Q., hon. men. in Eng. Composition, French, Drawing, Geometry.
13. Helen Ogilvie, of South Georgetown, P. Q., hon. mention in writing.
14. Helen Seath, of Montreal, hon. men. in book-keeping.
15. Janet Ross of Owenstown, geometry.
16. Elizabeth White of Montreal, hon. men. in history.
17. Albert Lows of Montreal, hon. men. Mensuration.
18. Catherine E. Taylor of Montreal.
19. Ann Jane Cooper of Montreal
20. Sarah Innes of Montréal, hon. men. in E. Grammar.
21. Mary Fyfe of Montreal.
22. Margaret Inglis of Montreal, hon. men. in Elocution.
23. Blanche C. Scott of Montreal.
24. Henrietta Anderson of Montreal, hon. men.
25. Mary E. Cowan of Montreal.
26. Joseph Dufresne of St. Michel, hon. men. Book keeping.

## MODEL SCHOOL DIPLOMAS.

1. Jessie Reed of Montreal, Prince of Wales Medal and Prize, and honorable mention in Education, History, Geography, E. Grammar, Elocution, French, Chemistry, Drawing, Vocal Music, Arithmetic, Algebra, Geometry, Book keeping, Mensuration, Latin and English Literature.
2. Thomas J. Moore of Quebec, hon. men. in Geography, E. Grammar, Drawing, Arithmetic, Algebra, Geometry, Mensuration, Book-keeping and Object Lessons.
2. John E. Martin of Warden, P. Q., hon. men. in History, E. Grammar, French, Arithmetic, Algebra, Mensuration, Book-keeping, and Latin.
4. George McManns of Berthier, P. Q., hon. men. in Geography, E. Grammar, Elocution, Drawing, Geometry, Book-keeping, Latin and Object Lessons.
5. Robert M. Campbell of Montreal, hon. men. in Education, E. Composition, Geography, Elocution, Vocal Music, Arithmetic, Algebra, and Mensuration.
6. Francis C. Haney of Valleyfield, P. Q., hon. men. in Mental Philosophy, Greek, Latin, Geometry, and Mechanics.
7. Josephine Cunin of Montreal, hon. men. in Geometry.

## ELEMENTARY SCHOOL DIPLOMAS.

1. Bertha Graham of Montreal, J. C. Wilson, prize and hon. men. in Geography, E. Grammar, E. Literature, Writing, French, Vocal Music, Arithmetic, Geometry, Book-keeping and Art of Teaching.

2. Samuel Fortier, of Leeds, P. Q., hon. men. in Geography, E. Grammar, E. Literature, French, Arithmetic, Algebra, Geometry, Mensuration, Book-keeping and Art of Teaching.
3. Robina Brodie, of North Georgetown, P. Q., hon. men. in E. Grammar, Writing, French, Arithmetic and Mensuration, Art of Teaching and Botany.
4. Florence Thurston, of Lachine, hon. men. in Writing, Elocution, Vocal Music, Arithmetic, Algebra, Geometry, Mensuration and Book-keeping.
5. Leon Dyer, of Sutton, hon. men. in E. Grammar, French, Arithmetic, Geometry, Mensuration, Book-keeping, Art of Teaching and Botany.
6. Jennie Fabian, of Montreal, Elocution, Vocal Music, Arithmetic, Algebra and Geometry.
7. Elizabeth Reid, of Montreal, hon. men. in Geography, Arithmetic, Geometry and Mensuration.
8. Janet McDougall, of Ormstown, P. Q., hon. men. in Writing, Arithmetic and Mensuration. Art of Teaching and Botany.
9. Sarah Turner, of Montreal, hon. men. in Geography, Art of Teaching and Botany.
10. Armine Nutting, of Waterloo, P. Q., hon. men. in Elocution and Vocal Music.
11. Clifford Scott, of West Bromo, P. Q., hon. men. in Geometry and Book-keeping.
12. Margaret McDougall, of Ormstown, P. Q., hon. men. in Mensuration.
13. Kate Wilson, of Montreal, hon. men. in Eng. Literature.
14. Margaret Martin, of Montreal, hon. men. in Geography, E. Grammar, and Natural Philosophy.
15. Paula Fuller, of Chatam, P. Q., hon. men. in Geometry and Book-keeping.
16. Ffife Fuller, of Chatham, P. Q., hon. men. in Vocal Music.
17. Jessie Hamilton, of Montreal, hon. men. in Algebra.
18. Annie Aird, of Montreal, hon. men. in Writing.
19. Lucie Popham, of Montreal, hon. men. in Writing.
20. Marion Russell, of Montreal, hon. men. in Arithmetic and Book-keeping.
21. Susan Fennell, of Jamestown, P. Q., hon. men. in Arithmetic.
22. William Scott, of Sweetsburg, P. Q., hon. men. in Geography, Geometry, and Book-keeping.
23. Jessie Dalgleish, of Montreal.
24. Elderkin Shurtleiff, of Massawippi, P. Q., hon. men. in Algebra and Mensuration.
25. Matilda Peyton, of Montreal, hon. men. in Eng. Grammar, Elocution and French.
26. Jessie Shanks, of Quebec, hon. men. in Vocal Music.
27. Jannie Skinner, of Waterloo, P. Q.
28. Frances Leslie, of Montreal.
29. Annie Scroggie, of Montreal, hon. men. in Eng. Literature.
30. Jessie Gordon, of Montreal.
31. Emily Guy, of Montreal, hon. men. in Elocution.
32. Clara Bower, of Sabrevois, P. Q., hon. men. in Vocal Music.
33. Marietta Kizar, of Massawippi, P. Q., hon. men. in Elocution.
34. Warren Kneeland, of South Stukely, P. Q.
35. Dunbar Brown, of Montreal.
36. Alice Lee, of Montreal.
37. Lydir Pease, of Montreal, hon. men. in Eng. Composition.
38. Ida Magoon, of Stantead, P. Q., hon. men. in Vocal Music, Algebra and Book-keeping.
39. Christina Ross, of Montreal.
40. Grace Hall, of Leeds, P. Q.
41. Prudence Henthorne, of Montreal.
42. Corinne Coursolle, of Montreal.
43. Grace Short, of Montreal.
44. David Henry, of Montreal.
45. Mary McNider, of Little Metis, P. Q.
46. Elizabeth Parmiter, of St. John's, Newfoundland.

Mr. Curtis then read his valedictory, taking as his subject "There is nothing new under the sun."

Professor Robins then made a very pleasing speech, in which he bid the students who had gained diplomas farewell, and gave them some very good advice as to their future guidance.

Dr. Dawson compared the McGill University and the McGill Normal School to two wheels attached to the same cart and working together one assisting the other. He congratulated the scholars on their eagerness to get first class diplomas, and not be content as the scholars in olden times were to simply receive a certificate irrespective of class. In conclusion

he urged upon those who had gained diplomas to be patient with the young people they would most likely have under their care, and shewed how necessary it was to a child's welfare that patience and kindness should be shewn to it.

Professor Hicks then wished the students a last farewell and hoped they would write to him if they were in any difficulty, and to call at the school whenever they happened to be in the city.

During the afternoon several young ladies played many pianoforte pieces and sang glees. After the benediction had been pronounced the people gradually dispersed to their respective homes.

#### Senior School, Burnside Hall.

The closing exercises took place at this school last evening about 9 o'clock, the Rev. Dr. Jenkins in the chair, and Professor Robins, the Rev. Mr. Roy, Rev. Donald Macrae, of St. John, N. B., Professor Andrew and Mr. Haight, head master, were also present. The reverend chairman opened the proceedings with prayer. The pupils entered the school room in a very precise manner to the music of a stirring march by Prof. Fuchs, after which the report of the head master was submitted, showing a very creditable state of affairs for the school. A few remarks by the Rev. Chairman of an encouraging and commendatory character were made, after which a latin song "*Gaudemus igitur*" was rendered by the school.

Prizes were then awarded to the Lower Senior Class of Boys by the Rev. Dr. Jenkins. The entire school then sang "The Union Jack," which was followed by a recitation by 8 or 10 young ladies of the school "The Passions" being the piece chosen, and which was given creditably. The elocutionary department is under Professor Andrew. Prizes were then distributed to the Lower Senior Girls, the Chairman accompanying the gifts with a few remarks which delighted the little people very much. The German song, "Reiterlied," having been sung, the prizes were distributed to the upper senior class. Miss Warren conducts the music under the tonic sol-fa system, upon which method Professor Robins commented favorably at the close.

The intention of this senior school is to give a knowledge of the higher English branches to pupils, after they have had a course in the Common Schools.

The following is the list :

LOWER SENIOR BOYS.—Walter McDunnough, reading George Shotton, writing ; Alex. Cunin, French ; Chas. Bennet, punctuality ; Wm. Black, Eng. literature ; Wm. Scropie, drawing ; all honor cards. Alex. Anderson, history, geometry and 2nd gen. prof., book. Jas. Steele, spelling, arithmetic, algebra, geography, grammar, book-keeping and 1st gen. prof., book.

LOWER SENIOR GIRLS.—Annie Robinson, reading ; Grace Bashano, writing ; Caroline Coursol, French ; Maria Blair, book-keeping ; Mary Wilson, punctuality ; Augusta Peterson, German ; all honor cards. Mary Ash, spelling, arithmetic, chemistry and drawing, book ; Grace Darling, algebra, geography, geometry and 2nd gen. prof., book ; Hettie Wood, grammar, history, Eng. literature and 1st gen. prof.

UPPER SENIORS.—William Rainsford, spelling, honor card ; Dougal MacCunn, punctuality, honor card ; William Muth, commercial law, honor card ; Sam Burrel, punctuality and 2nd gen. prof., book ; Wm.

Milan, writing, mensuration, and 1st. gen. prof., \$1.25 book and medal ; Augusta Swif, reading ; Mary Anderson, geography, honor cards ; Georgiana Isles, punctuality, geometry, and 2nd gen. prof., book ; Jemimar Rodgers, arith., algebra, French, grammar, history, botany, book-keeping, punctuality, drawing, 1st gen. prof., book and medal.

### The High Schools.

#### GIRLS' DEPARTMENT.

Yesterday morning the pupils of this department of the new High School assembled in their school building, Peel and Metcalfe streets, to attend the closing exercises of the first part of their studies for 1878. The large hall in which the scholars were assembled, was decorated with flowers and evergreens in a manner which indicated that in the rush and bustle of study, taste in adorning and a love of that which is beautiful, were not crowded out. The chairman of the Board of School Commissioners, the Rev. Dr. Jenkins, was present, also the Lady Principal, Mrs. Scott, the Rev. Mr. Macrae, of St. John, N. B., the Rev. J. Stephenson of St. John, N. B. Mr. W. Lunn, Treasurer of the Commission, Professor Robins and others.

The Chairman, having opened the meeting, called upon the lady principal to read the report of the school.

#### THIRD ANNUAL REPORT.

It is not necessary for me to-day to take up your time with a very lengthy report, as our school and its working has already been before the public on two occasions this year. The year which draws to a close to-day has been on the whole a successful one, notwithstanding the fact that we have had some irregularities and loss of time in consequence of moving, but the benefit we have received from the increased facilities we have here for carrying on our work has more than made up for any inconvenience we had to suffer. During this scholastic year the number of pupils on our roll has been 240, which is the largest yet attained. Senior department 73 and Junior 167. The want of space in our old building obliged us to refuse pupils in all our junior classes. The second and third seniors are the only classes which have not been filled, and this is due to the high standard required for entering those. This difficulty will wear away as our junior pupils come up prepared to enter the senior department. The attendance has been better than in any former year. We have still to complain of a falling off in the last term, but it is much less than last year, and we have to record the pleasant fact of more pupils remaining over for the written examination than ever before. I am sure that I may say with the concurrence of my entire staff of teachers, that we have to thank our young friends for the earnestness and attention which they have manifested, and if I may be allowed, Mr. Chairman, I would like to mention particularly the 3rd Junior Class in which the pupils by their lady-like behaviour reflect much credit upon the teacher in charge and thereby have

lightened the duties of all those who have come in contact with the class. The results of the written examination which we are about to present this morning show a satisfactory attainment throughout the classes although we have to record some failures. Ten of our young Ladies have passed successfully the school examinations of McGill University.

It is with great pleasure I tender my sincere thanks to the Ladies and Gentlemen who have assisted me, for the prompt and pleasant discharge of every duty assigned to them and their great interest in every pupil under their charge.

L. H. SCOTT,  
Lady Principal.

The prize list was then read.

SENIOR DEPARTMENT.

Honor Student—Jane Darling, prize in Drawing, honors in Greek, Botany, Germany and Physiology; 3rd Senior Class—Grace Darling, silver medal, first rank general proficiency, prize in French, E. Literature, Elocution, German and Physiology, honors in History and Composition; Florence Bissett, 2d rank general proficiency, honors in English Literature, History, Composition and Trigonometry; Kate McKeand, prize in Composition and Writing, honors in English Literature; Laura Harrington, honors in English Literature and Composition; Edith Macphie, honors in English Literature.

Students who passed the University School Examination for the degree of A. A.—Grace Darling, Lillian Martin, Bessie Radford, Kate McKeand, Maggie Campbell, Florence Bissett, Maggie Osgood, Annie Baxter, Minnie Greenshields, Dora Scott.

2d Senior Class—Lillian Martin, bronze medal, first ranks, gen. prof., prize in German, honors in Latin, French, E. literature, composition and botany; Bessie Radford, 2d rank, gen. prof., prize in botany, honors in E. literature, composition and botany; Christina Davidson, prize in history, prize in penmanship; Maggie Campbell, honors in history and composition; Annie Baxter, prize in E. literature, honors in composition; Maggie Osgood, honors in E. literature and elocution; Minnie Greenshields, prize in composition; Christina Galt, honors in literature and composition; Louisa McNaughton, honors in composition; Dora Scott, honors in German; Helena Taylor, honors in E. literature; Alice Douglas, prize in elocution; Louisa Miller, honors in history and elocution.

1st. Senior Class—1. Emily Kemp, bronze medal, prize in history and Latin, honors in Eng. literature, grammar, composition, eloc., French, geography and algebra; 2. Amelia Harris, 2nd rank, gen. prof., prize in geography, honors in German, Eng. literature, composition, history and algebra; Jeannie Johnston, prize in elocution, Latin, French and arithmetic, honors in grammar, geography and algebra; Margt. Sanborn, prize in composition, honors in English literature, grammar, Latin and French; Donalda McFee, prize in literature, honors in grammar, composition, elocution, French, geog. and alg.; Lillie Clark, prize in mathematics, honors in grammar, Latin and arithmetic; Annie Coulthard, prize in Grammar; May Badenach, prize in Geography, honors in Grammar, Arithmetic and Algebra; Alice Mitchell, prize in Writing; Lizzie Johnson, prize in Elocution; Fanny B. Evans, honors in Literature, Grammar, Elocution, Arithmetic and Algebra; Louisa Cole, honors in Mathematics; Lena Livingstone, honors in Grammar, Composition, Writing and Geography; Jessie Greenshields, English Literature; Ella Cole, Geography; Jennie Samuel, Grammar and Composition; Eleanor Sweeney, Grammar; Alice Maxwell, Grammar and writing; Minnie Morrin, Elocution; Charlotte Dawes, Elocution; Lillie Wilson, Writing; Maud Lamb, Grammar and Algebra.

JUNIOR AND PREPARATORY DEPARTMENT.

3rd Junior Class.—1st rank general proficiency, Lily Cochrane, Annie Russell and Emily Atwater; 2nd rank general proficiency Annie Moss, May Watt and Mary Kingston, Lily Cochrane bronze medal 1st rank general proficiency, prize in Elocution, Spelling, French, Scripture, and Calisthenics, honors Grammar, Composition, Latin, Geography and Drawing; 1. Annie Russell, bronze medal 1st rank general proficiency, Prize in Composition, Latin and Geography, honors in conduct, Grammar, Elocution, Canadian History, Arithmetic, Drawing and Punctuality; Annie Moss, 2nd rank general proficiency, prize for Punctuality, honors in Composition, Latin, Spelling, Geography, Scripture, Drawing, Canadian History and Arithmetic; May Watts, prize, 2nd rank general proficiency, prize

in Can. history, honors in Spelling, Latin and Scripture; Emily Atwater, bronze medal, 1st rank general proficiency, honors in grammar, composition, spelling geography and punctuality; Mary Kingston, prize 2nd rank general proficiency, prize in composition, elocution and spelling, honors in writing, spelling and grammar; Annie Russell, prize in grammar and geography, honors in Latin and punctuality; Edith Whitham, prize for writing, honors in grammar, composition and punctuality; Mabel Slater, honors in writing, Latin, geography and drawing; Elizabeth Binmore, prize in Latin, honors in conduct and punctuality; Millie Hall, prize in Can. history and music, honors in spelling, Latin, and punctuality; Grace Foster, prize in writing, Latin and spelling, honors in drawing; Elizabeth Cook, prize for punctuality, honors in composition and arithmetic; Margaret Louson, honors in drawing; Jennie McFarlane, honors in grammar and spelling; Marion Thompson, honors in elocution; Minnie Boyd, prize for conduct, honors in spelling and music; Mina McLaren, prize in drawing; Louisa Reed, prize for punctuality; Dora Saunders, honors in spelling; Alice Bissett, prize for conduct and calisthenics, honors in writing; Jane Murphy, prize in arithmetic, elocution, drawing and conduct, honors in writing and punctuality; Jennie Russell, honors in drawing and punctuality Iva McConkey, honors in writing and composition; Mary Russell, prize for punctuality; Janet McIntyre, prize for punctuality, honors in writing, Mary McIntyre, honors in punctuality; Eva Mooney, honors in writing.

2nd Junior Class.—Miss Mary Carter, Bronze Medal 1st Proficiency Prize. Prize in Composition, Elocution, Spelling, Arithmetic, Calisthenics. Honors in Grammar, Writing, Latin, French, and Drawing; Miss Christina Wilson, 2nd General Proficiency prize. Prize in writing, Honors in Grammar, Composition, Spelling, Elocution, Latin, Geography, Drawing and Scripture; Miss Sarah Holden, General Proficiency prize. Prize in Conduct, Writing, Drawing, Honors in Grammar, Composition, Latin, Geography, Scripture, Arithmetic; Miss Martha Martin, Prize in General Proficiency, Latin, French, Punctuality. Honors in Composition, Writing, Spelling, Arithmetic, and Grammar; Miss Edith Martin, prize in general proficiency, honors in grammar, Latin, arithmetic, elocution, spelling; Miss Emma Martin, general proficiency, prize, honors in latin, spelling, elocution, French, arithmetic; Miss Adelaide Wilson, prize in general proficiency and writing, honors in composition, elocution, Latin, spelling; Miss Blanch Hyman, prize in general proficiency and grammar, honors in writing, Latin, geography arithmetic; Miss Annie Evans, prize in general proficiency, honors in composition, spelling, Latin; Miss Mary Badgley, prize in general proficiency, conduct, writing, scripture and calisthenics, honors in composition, elocution and drawing; Miss Ida Smith, prize in general proficiency, geography, honors in elocution, Latin, scripture, arithmetic; Miss Carrie Auldjo, prize in general proficiency, honors in elocution writing scripture; Miss Lucy Atwater, honors in grammar, composition, Latin drawing; Miss Ellie Hill, honors in writing, spelling, arithmetic, grammar; Miss Wilhelmina Dier, honors in grammar, scripture, arithmetic; Miss Martha Murphy, prize in punctuality, honors in composition; writing, spelling, scripture, arithmetic; Miss Florence Evans, prize in composition and drawing; Miss Lizzie Donelly, honors in elocution and arithmetic; Miss Minnie Carsley, honors in grammar and arithmetic; Miss Agnes Burns, prize in punctuality, honors in conduct and writing; Miss Maggie Johnston, honors in arithmetic; Miss Annie Smith, honors in composition, elocution and Latin; Miss Nellie Bryson, honors in conduct; Miss Henrietta McGibbon, honors in conduct; Miss Bertha Jack, honors in music, composition and spelling; Miss Alice Wilson, honors in writing; Miss Florence Munro, prize for conduct; Miss Caroline Hearle, prize for spelling; Miss Effie Darling, prize for spelling; Miss Edith Murphy, prize for writing and punctuality; Miss Annie McLeod, prize for French; Miss Ada Saunders, honors in grammar, elocution, and history; Miss Lila Warden, honors in history; Miss Carrie Ames, honors in arithmetic; Miss Willie Cooper, honors in elocution; Miss Edith Fisher, honors in French; Miss Florence Crawford, honors in French; Miss Florence Atkinson, prize for general proficiency, Spelling and Geography, honors in Grammar and Writing; Miss Josephine Muir, prize for general proficiency, honors in elocution, writing, history and arithmetic; Miss May McConkey, prize for general proficiency and spelling, honors in elocution; Miss Annie Benson, prize for general proficiency and punctuality, honors in Composition; Miss Christina Becket, prize for general proficiency, honors in spelling and history; Miss Eveline Fisher, prize for general proficiency; Miss Kate Dumoulin, prize in spelling, honors in elocution; Miss Kate Wilson, prize for punctuality, honors in elocution, writing and history.

First Junior Class.—1st prize, general proficiency, bronze medal, Miss Grace Angus and Miss Helen Bangs; 2nd prize, general proficiency, Miss Heleny Leeming. Miss Grace Angus, bronze medal, 1st general proficiency prize in history, composition, elocution, arithmetic and calisthenics, honors in grammar, spelling and geography; Miss Helen Bangs, bronze medal, 1st general proficiency prize in

punctuality, honors in composition, french, élocution, spelling, history, arithmetic and geography; Miss Helena Leeming, prize for 2nd general proficiency, prize in grammar and elocution, honors in spelling; composition, history and French.

#### PREPARATORY DEPARTMENT.

Third Class—A. Mooney, prize for 1st proficiency, prize for spelling, honors in grammar, elocution, writing, French, s. history and arithmetic; S. Mooney, prize for 2d proficiency and history, honors in grammar, elocution, spelling and French; J. Robertson, prize in Grammar, French and proficiency, honors in arithmetic and geography; E. Jardine, prize for conduct, punctuality and proficiency, honors in elocution, writing, spelling, geography and arithmetic; J. Smith, prize in elocution, writing and proficiency, honors in spelling, geography and arithmetic; C. Atkinson, prize in geography, conduct and proficiency, honors in s. history and arithmetic, T. McNeil, prize in geography, arithmetic and proficiency; C. Simpson, prize for punctuality, writing, arithmetic and proficiency; G. Fisher, honors in writing, spelling, geography and arithmetic; H. Gardner, honors in writing, geography and arithmetic; A. Cassils, honors in spelling and arithmetic.

2nd and 1st Classes—N. Reid. Prize for 1st proficiency. Prize in Spelling and Grammar; Honors in S. History Arithmetic and Geography; N. Goff, Prize for 1st Proficiency. Prize in French and Arithmetic. Honors in Writing, Spelling, Geography, History; A. Robb, Prize for 2nd Proficiency; E. Shewan, Prize for 2nd Proficiency. Prize in Writing, Arithmetic, Geography, Honors in Spelling and S. History. M. Allan, prize in S. History and Proficiency; E. Holden, prize for Calisthenics and Proficiency, honors in Writing and Arithmetic; E. Beers, prize for Proficiency; O. Stewart, honors in Spelling, S. History and Arithmetic; L. Crawford, honors in Writing and Arithmetic; L. Smith, honors in Arithmetic.

After some remarks by the Revd. Dr. Jenkins, the successful pupils were called out, and the prizes awarded, commencing with the third seniors and ending with the preparatory class. The National Anthem brought the proceedings to a close, and the young ladies took seats, close by, assigned them on the back part of the platform.

#### THE BOYS' DEPARTMENT.

This department, Dr. Howe, Principal, was then called, and the boys marched into the room and filed into the seats vacated by the ladies. Dr. Jenkins presided, and added to those already mentioned as having been present, there were on the platform Professor Andrew and Professor Murray. Dr. Howe read the report of the school for the year, and submitted the prize list, both of which want of space obliges us to hold over. When it was announced that Mr. Henri Lafleur had taken the first place of merit among his school-fellows, the latter burst forth with loud cheers. Master Smith, Wheeler, Haldimand, Kinghorn, DeZouche and Allan gave a reading from *Midsummer Night's Dream* in a highly finished manner, the dialogue being well sustained, and the points emphasized to the letter. Instead of the customary singing of the National Anthem, the boys cheered for Her Majesty with a will, and afterwards they gave three cheers for Dr. Howe and three more for Mr. Duval. The Rev. Dr. Jenkins then pronounced the benediction.

#### St. Mary's College.

The closing session of the year 1877-78 was held yesterday morning in the Academical Hall of the College, when the students who had passed successful examinations were presented with their prizes

and crowns of honor. A large number of clergy and the parents and friends of the scholars were presents.

The programme opened with music, after which an address on "Natural Sciences" was given by Mr. Henri Daze; and another address on "The Use of the Study of History" was given by Mr. James A. Mugan. Both these gentlemen are students of the college and by their able delineation of the subject chosen excited the admiration of all present.

The distribution of the prizes then followed, but for want of space, we regret that we cannot publish the names. The number of prizes given was very numerous and as each successful student received his prizes which mostly consisted of books the others applauded loudly. The subjects in which the students passed satisfactorily were; Religious instruction, philosophy, rhetoric, belles-lettres, versification, method, syntax, Latin, French, English, commercial course, elementary course, mathematics, music and drawing. In the examination of honor Mr. Jas. A. Mugan and Horace St. Louis passed excellently well in rhetoric; the former in all the works of Virgil and the seven tragedies of Sophocles and the latter in the *Iliad* of Homer.

The Revd. Father Cazeau, Rector of the College, then made a few remarks to the students on the advantages of education and the propriety of attaining as much of it as possible. He expressed himself highly pleased at the success of the closing year's work but still hoped it would improve. He also reminded parents of the necessity of educating their children to the utmost advantage.

The assembly then proceeded in a body to the Church, where the students advanced two abreast up to the altar and presented their crowns to the celebrant, the Revd. Rector, who deposited them upon the altar, Bishop Fabre then intoned the *Te Deum* and pronounced the benediction of the blessed sacrament, whereupon the ceremony concluded.

#### Berthier Grammar School.

A public examination of the Berthier School for boys was held on the 25th instant, in the presence of a large and influential audience. Among the visitors were the Rev. W. C. Merrick of Berthier, the Rev. L. N. Tucker of Sorel, Mr. Ward of Montréal, O. Cuthbert, M. P., Col. Hanson, and several ladies and gentlemen of the place. The examination was very searching, extended over all the subjects studied during the year, and resulted in the satisfaction of all present. For some days previous the boys had been subjected to a severe written examination with the following results, as seen in the reports read by the Principal and his assistant, Mr. J. W. Tucker.

General Standing—I. Division—1 Lander, 2 Shearer, 3 Fairbanks and McManus. II. Division—1 V. Forneret, 2 C. Forneret, W. D. Nutter and C. F. Reeve, 3 E. W. Staveley.

Spelling—I. 1 Lander, 2 Fairbanks, 3 Ward, II. 1 C. Forneret, 2 E. W. Staveley, 3 V. Forneret.

Reading—I. 1 Lander, 2 Fairbanks, 3 Shearer and Ware, II. 1 C. Forneret, 2 Staveley and V. Forneret, 3 W. D. Nutter, C. F. Reeve and Dixon.

Writing—I. 1 Lander, Ralston, W. Hamilton and H. D. Hamilton. 2 Shearer, 3 Fairbanks and Haldimand. II. 1 V. Forneret and W. D. Nutter.

Grammar—I. 1 Lander, 2 H. D. Hamilton, 3 W. Hamilton. II. 1 V. Forneret, 2 C. Forneret, 3 W. D. Nutter.

Composition—I. 1 Lander, 2 H. D. Hamilton, 3 W. Hamilton and Fairbanks. II. 1 Reeve, 2 V. Forneret, 3 C. Forneret and Nutter.

Geography—I. 1 Shearer, 2 W. Hamilton and McManus, 3 Fairbanks. II. 1 V. Forneret and Nutter, 2 Reeve, 3 Dixon.

History—I. 1 Fairbanks, 2 Ralston, 3 Ward. II. 1 V. Forneret, 2 Nutter, 3 Reeve.

Book-keeping—I. 1 Lander, 2 Ralston, 3 W. Hamilton and Haldimand. II. 1 Nutter and Reeve.

Arithmetic—I. 1 Lander and Ralston, 2 H. D. Hamilton, 3 W. Hamilton. II. 1 V. Forneret, 2 Stavely, 3 C. Forneret.

French—I. 1 Lander, 2 Shearer, 3 Ralston.

Latin—I. 1 Lander, 2 Shearer, 3 W. Hamilton and McManus.

Algebra—I. 1 Lander, 2 Shearer, 3 Fairbanks.

Astronomy—I. 1 Lander, 2 McManus, 3 Shearer.

Geometry—I. 1 Lander, 2 McManus, 3 Fairbanks.

Two things in the Principal's report are deserving of special notice. The Principal states in the first place, that he cannot point to any instance in the whole year where his boys have flagrantly transgressed the rules of the institution or deviated in any serious particular from the highest code of honor; and, in the second place, that he has never met, in the lengthened experience as a teacher, with any set of boys who made as much progress in one scholastic year. Those two statements must be highly gratifying to the parents as well as to the teachers of the boys, and must reflect great credit upon the boys themselves and upon the school.

The progress made during the year and the marks gained in the final examination by Lander in particular, called forth the highest encomiums from the Principal and the loudest cheers from the visitors and the boys, his schoolmaster. With honor and truth for a helm, and with industry and perseverance for a motive power, I venture to predict to those boys a great, if not a brilliant, future, and to say that amid the shoals and the rocks, the waves and other eddies of life's tempestuous sea, they will succeed in mooring their respective fortunes securely in the harbor of true and lasting success.

The superior character of the Berthier school is well known. The locality offers the combined advantages of good boating, bathing, shooting and fishing, of the purest air, the richest country scenery and the most refined society. The school itself is in connection with the Church of England, and is under the able management of the Rev. Edward McManus a man of large experience and of marked success as a teacher. It is free from the temptations, and offers most of the advantages of a city school and all the peculiar advantages of country life. French is taught, in theory, in the school and it may be picked up in practice, either in the rustic garb of a *patois* from the *habitant*, or in the most graceful Parisian or Geneva custom from the ladies of the Amaran Seminary. And I know of no school in the Province, where greater care is bestowed on the moral, the intellectual and the religious education of young men than in the Berthier Grammar School.

A. B.

Sorel, June 26, 1878.

### Varenes College.

Last evening the closing exercises in connection with the Commercial College at Varenes took place in the large hall of the college building. There was a very large audience present and among those from a distance were, in addition to a number of members of the clergy, the Chief Superintendent of Education, the Hon. G. Ouimet and Messrs. Barbeau, Archambault, Demers, White, and Senator Girard. The public examination was confined to the commercial department, under the direction of Professor Fitzsimmons. The pupils were examined in book-keeping, mental arithmetic, and telegraphy. Mr. Barbeau putting some questions in book-keeping and Rev. Mr. Villeneuve in arithmetic, the answers to which were most satisfactory, as indicating the thoroughness of the teaching. The prizes were then distributed to the successful pupils; a formal address was presented to the chief Superintendent of Education, and short speeches were delivered by the Hon. M. Ouimet, the Rev. Mr. Villeneuve, and Messrs. Barbeau and T. White. The college band played during the evening. We are glad to learn that this College is steadily growing in the public favour, the importance of a sound commercial education being every day more thoroughly appreciated.

### Bishop's College.

#### ANNUAL CONVOCATION.

The annual meeting of the convocation of Bishop's College, for the conferring of degrees in the Faculty of Arts and Divinity, was held on Thursday, 27th. June, in the College Hall Lennoxville. At 2 45 p. m., the students, graduates and Professors marched in procession into the Hall, the newly elected Vice-Chancellor Rev. Canon Norman, and the Chancellor R. W. Henneker, Esq. bringing up the rear. As usual the hall was well filled with a large and fashionable audience, the hoods of the graduates of Bishop's and other Universities contrasting very prettily with the black gowns of the men on the one hand, and with the light drapery of the ladies of the other. The Chancellor, clad in his robes of office and supported by the Right Reverend Bishop of Quebec on the right, and by the Reverend Vice-Chancellor on the left side, opened the convocation by the following address:

In opening this convocation I have the pleasure to welcome all the friends of the College, whom I see gathered here this day, both members of convocation and strangers, and I am glad indeed to be able to receive them, if not as yet in a proper Hall, still in a building in thorough repair, contrasting greatly with the dilapidated Hall of a year ago. I can now recall a good many convocations of Bishop's College, and it does not seem so very long a time since our only place of meeting was in a dilapidated shed, on the very site of this Hall in which we are now assembled. We have made some way since those



days despite a good many drawbacks, and I think I am justified in looking forward to even greater results in the future.

These annual gatherings like other anniversaries naturally give rise to reflections, especially when any great change has occurred in the course of the previous year. Our reflections at this time must of necessity take their origin in the loss the College has sustained by the lamented death of the first Principal of the institution, Dr. Nicolls. It is a fortunate day for us of the existing generation that men's good deeds live after them, these very deeds being often of the nature of self-sacrifices of no ordinary character, undertaken from a strong sense of duty growing out of a deeply religious spirit. A few days ago only, I was much struck by the tone and remarks of the Bishop of Québec in his sermon at the consecration of the College Chapel, when he brought strikingly to the minds of his hearers, a vivid picture of the character and work done by the founders and early workers of this institution. It is indeed a good thing to be thus reminded of what our predecessors have done, for whilst retaining in the memory of the College their names and benefactions it tends to stimulate us to try and emulate their good deeds. The Revd. Lucius Doolittle, the late Bishops Mountain and Fulford, were thus portrayed, but special stress was laid on the character and work of the late Principal, whose sad and unexpected loss last summer threw such a gloom over this community.

In this and other respects the year just closed has been one of historic interest in the life of Bishop's College. Speaking metaphorically a dynasty has passed away, a new dynasty has arisen. Not one of the Mountain or Nicolls family remains connected with this College, which had been hitherto so imbued with their spirit.

Referring again more particularly to our lost friend he was, when we met here last year, if not in rude health—apparently in improved health, full of the plans for the rebuilding of the College, which had been determined on only a short time previously. To this work he brought a great amount of practical knowledge, combined with sound common sense. This new building of which, under all the circumstances of the case, we are not a little proud owes much of its success, apart from the skill of J. W. Nelson, of Montreal, the architect, to the suggestions and careful consideration given to the subject by Dr. Nicolls. He lived only to see the plan thoroughly matured, and left to others the completion of the work. Another matter in which he took the deepest interest, the enlargement of the chapel, has also since his death been completed, and his memory will ever be associated not only generally with the College, but especially with the Chapel, which had peculiar interest for him.

Many, very many, will for a long time mourn his loss, but the old adage "life is short but art is long," will be exemplified in his case, for it may truly be said he has left his mark in this College, as well in a material point of view, as in the hearts and minds

of those who were associated with him in his labours, and who have passed into active life from under his care. A noble band of men they are doing their master's work well and faithfully, a credit to the Church to which they belong and to the Institution which reared them.

But if we have thus lost an able, kind and zealous friend, that loss I am happy to say has not proved irreparable.

We have been fortunate in finding a gentleman to undertake the responsible duties of the office, who has proved himself to be in every way a worthy successor to Dr. Nicolls. Already he has gained the good will of all who have come into contact with him. I think I am justified in saying that Professors, Graduates and Undergraduates, all combine to bear testimony to his merits. The College School, also, share in the just estimation of his high qualities, and deservedly so, for he renders important service, to the School and valuable assistance to the Rector, and to complete the picture the outside public, that great irresponsible censor, seems to have caught almost intuitively the idea that no man in Canada could have been selected capable of more worthily filling the place.

And let us consider for a moment what this place is. I have no hesitation in saying that it is one of the most important in this new country. In the older universities of the Mother Country Wardens or Masters of colleges have truly the responsibility and prestige of high office—but they share that responsibility with a large staff of able professors—and they have in addition the inestimable advantage of the association of a large body of men of like position with themselves, by contact with whom they are able to maintain without effort the high standard so necessary to their position. The very air they breathe may be said to be intellectual and academic.

In this country the Principal of such a college as ours is surrounded by but a small staff, and the actual work to be done is the more severe—that the men who come up to college have generally less training and demand therefore more careful intellectual discipline than in England. When our academies shall become, in point of training, nearer to the English public schools, then we may hope to see the men who enter college in Canada approach the standard of those who matriculate in the English universities. Men so taught can be more easily carried on the higher class of education, which it is the province of a University to develop. Already in this country the desire is growing, and the work now being done by the Council of Public Instruction in the thorough annual inspection of the academies is producing fruit. I hope the time is not distant when the public education of this Province will compare favorably with that of the sister Province of Ontario, and I am sure Bishop's College will do its utmost to help on the good work. The preceding remarks are not intended to disparage the undergraduates of the college, but to shew the difficulties under which Principal and Professors labor, as



compared with like men in older communities. I am sure many of the undergraduates themselves, who have not the training I refer to, will be the first to acknowledge that this hard work would have been easier, and their time more valuably employed if they had received a public school training in the first instance, but they will deserve more honor if they attain a good position in spite of early disadvantages.

I know full well that the very nature of colonial life, or life in any *new* country, keeps back the higher education. There are, if few absolutely poor, yet few, very few, actually rich, and men are driven into practical life at an age much earlier than in England. Again parents are so engrossed in their efforts to make a living that they have but little time, even if they are themselves qualified, to take a personal interest in this important question, but still I maintain that whatever an old and rich country with accumulated wealth may demand we, in this new country, if we are to keep pace with others, if we desire to claim any position in the world, must exert all our faculties and master the difficulties of our position. High education in our case I hold to be an absolute necessity.

If these remarks have any value, it will show how great is the responsibility thrown upon those who have the charge of education, and how deep our sympathy and gratitude should be to them, for like all good works the money payment bears no comparison with the duties, and he who undertakes the work must be governed by somewhat of that missionary spirit which looks for a reward elsewhere than in the emoluments of office.

It must be a pleasant thing for our new Principal, however, to feel that following closely on his accession to office, the College has been rebuilt and the Chapel enlarged—the library replenished, and in a material sense, all that tends to cheer him in his work made as it were ready to his hands. Long may the College prosper under his care! and great may the success be which shall attend his efforts!

But there is another branch of the institution which, although lower in dignity than the College, is yet looked upon with scarcely less interest by a large class of the community; I mean our College school.

Here again the year has been marked by change. We knew last year of the resignation of the late Rector, Mr. Badgley, and it was felt to be no easy task, in the short time afforded for the selection, to find a successor who could worthily fill a place so keenly scanned by those who are anxious about the education of their children and the growing boys of this country.

It felt some delicacy in speaking so much about our new Principal in his presence. I have a similar difficulty in alluding to our new Rector, but I regard it, nevertheless, as a duty publicly to state, not only in my official capacity, but as a parent having a young son under his charge, that the discipline and intellectual training at the College school under the Rev. Philip Read seems to me to have

been *absolutely* satisfactory. The staff is in all respects a most excellent one. Conscientious in the discharge of his duties. I feel I cannot give higher praise. The tone of the school—that high tone which has drawn from His Lordship the Bishop of Quebec the remark, “that it was always pleasant to meet with a Lennoxville boy,” has been well maintained.

Great authorities have remarked that the high position won for England in the estimation of the nations is not a little due to her public schools, where intelligent liberty of action and a high sense of honor are inculcated without that dreadful system of espionage which is the curse of the Continental system. We who are interested in the College have been desirous to establish in Canada an institution similar in character to those of England, believing that similar results will flow to us from our efforts. We believe in careful supervision, but not in the spy system with a pane of glass in each door, that the room may be inspected from without. We believe in the usefulness of manly games and athletic sports, and that the character is formed in the cricket field and the play-ground quite as much as in the school-room.

It is our aim to have a high class public school, and we believe that this work has been accomplished in the past and will be maintained under the present Rector of Bishop's College School.

I should also mention that the Rector, reciprocating the feeling which actuates the Principal in assisting in school work, takes his part also in the College as one of the professorial staff.

This reciprocity of action links together the two parts of the Institution, and men mutually assisting one another in the work specially given to each, are apt in many ways, if right-minded, while conferring mutual aid, to derive mutual benefit beyond their mere sphere of actual duty.

I would willingly devote time in praise of the special work of each of the College Professors, but we have much to do to-day, and I must content myself with giving public expression to the thanks they have so well earned. I must, however, not monopolize the bulk, but allow others abler than myself to interest you. I will conclude with an expression of my belief that with the present staff of both College and School, we are in a fair way to extend the benefits of a sound education wider throughout this community than heretofore, and that we naturally look in return for a wider range of sympathy from those who take an interest in our work.

In corroboration of what I have said as to the widening of the sympathies of this College, I may here announce that at the business meeting of Convocation yesterday, measures were taken to offer to colleges and schools in the Dominion the opportunity of affiliation with Bishop's College. A work of this kind necessarily requires to be dealt with cautiously, lest our desire to maintain a high standard should be frustrated; but the advantages offered to prominent scholars of the public schools of the country are so great that I sincerely hope they may bear fruit.

Bishop's College does not wish to be considered a close Corporation for the benefit of a limited class, but seeks to establish herself on the broad ground of general public usefulness, and asks for the sympathy and co-operation, not of English Churchmen alone, but of all who value high education.

After which, Colonel Strange, amidst the greatest applause, was called forward, and delighted every one with an address (far too short) full of pith and good sound sense. He said: "Perhaps as a soldier he ought to apologise for venturing to speak in so learned and august an assembly, but he would not do anything of the kind because as a soldier in coming here he was only obeying orders. He was invited to come and address that audience, and he came and did so." Then referring to the work going on at the College, he continued:—"It was said that the education of an early Parthian was to teach him to ride, to shoot and to tell the truth. That was all, but that all is a great deal, though people may be divided as to the exact value of moral and physical culture. For his part, he considered that that education was the best that balanced most equally, the cultivation of body and mind. The ancients produced great men by their scheme, men that could conduct the retreat of Xenophon, and then write it, and education somewhat similar in stamp is now dispensed in the mother country. The Duke of Wellington used to say that England or rather England's victory at Waterloo, was won on the cricket field. He considered that we are for our part exceedingly ungrateful, because we do not recognize the value of the school-master. It was not necessary to speak of Dr Arnold, as there were those present on whom Arnold's mantle had fallen, and who would prove the Arnolds of Canada; men who would by elevating their pupil's sense of honour, rather than by any system of *espionage*—peering through glass windows in the doors to overlook their pupils—lead them on and make them men of honour. Addressing himself to the students and scholars, the Colonel said: Young men do you know how older men look back to their school days, and how they look at those at school, when they in looking back consider, that whatever small amount of good is left in them is due to school influence. College and school, so beautifully blended as they are here, ought, he thought, to support, to help each other. He gave excellent advice to those who are preparing for Holy Orders. Canada, said he, this broad inheritance of ours, stretching as it does from an ice-bound coast, to the warmer west, does not require any "Molly Coddle" clergymen, she wants missionaries for a church militant, such men as Selwyn for instance. England owes much to her clergy, we don't know in fact how much the country owes, to a man like Kingsley, who had welded the hearts of young men as no other power could weld them. We should draw a lesson from our neighbors the French Canadians, who refuse no sacrifice for the education of their young men; As a small minority in the midst of these, we should make sure of not falling one step behind, for it is that, that enables

them to enter Parliament, and become our masters, for breadth of education never narrowed a man's capability for work. Accordingly there was an absolute necessity for supporting such institutions as this. He spoke very earnestly and wisely about the evil of taking lads from school too young, and pushing them into situations; in the end it would be found that those who were kept longest at school, would come out best. (Cheers.)

Rev. Principal Lobley regretted the absence of Prof. Roe, referred to his first address to a Lennoxville audience some four years ago, while a stranger in the country, and from his position when supposed by some to be hostile to Bishop's College, received an *ad eundem* degree. Nothing short of a summons home to England, would cause him to leave Lennoxville. He hoped to raise the standard of the College, not by adding to the already long list of subjects, but by extending the range, so as to leave certain subjects optional, thus allowing a man to devote more time to a particular line of study, wherever his inclination led him.

The reports of the examiners, Reverend Canon Norman in classics, Reverend I. Breck in divinity and Dr. Johnson, of McGill, in mathematics, were very satisfactory.

Degrees were next conferred as follows:—

Doctors Civil Law (*honoris causa*) Rev. Canon Norman; Vice-Chancellor, Rev. Principal Lobley; Rev. Mr. Dumoulin, L. Davidson, McGill; M. A. (*ad eundem*) Bachelor of Arts (*ad eundem*) Rev. Reed (Oxon), C. T. Grey 1 Phis. Doct. (Gottenburg), F. C. Boulbee (Cantab), J. LaRay (Paris). Degrees in course, Bachelor in Divinity, Rev. F. C. Ahnatt, M. A. Rev. P. Reed, R. Montizambert, B. A., H. Bishop, C. D. Brown, R. W. Brown, A. H. Judge, A. Lee, J. W. Weatherdon, F. M. Webster. Licentiates in Theology—Rev. A. M. Et. J. Brennan, Rev. G. R. Walters. Prizes were distributed as follows; G. P. G. Jubilee scholarship, best aggregate second year, W. P. Chambers; ditto first year, R. D. Hewton. Divinity—third year, R. W. Brown; second year, W. P. Chambers; first none. Classics—third year, R. W. Brown; second year, W. P. Chambers, first; C. Robertson and R. D. Hewton, first, Mathematics—third year, J. W. Weatherdon; 2nd year, E. J. Harper; first R. D. Hewton.

Mackie Essay prizes—For best Latin essay, R. W. Brewa; for best English essay, W. P. Chambers.

Hansel prize for reading the Liturgy, Rev. G. R. Walters. In faculty of Divinity, Mr. A. W. Colstan, B. A., first; F. M. Webster, second; also a special prize to Rev. A. M. Brennan.

Addresses were afterwards given by the Lord Bishop of Quebec, and by the Vice-Chancellor, and the prizes were given to the boys of the College School, Morris, Major, came out head of the school, and winner of the Dufferin silver medal, (see b). Joly, Max., son of the Premier, came out well, and took amongst others, the magnificent French prize given by Hon. Dr. Ouimet. The National Anthem concluded the proceedings.

#### Villa Maria Convent.

The distribution of prizes and diplomas at Villa Maria with its usual brilliant display of musical talent, eloquent declamation and artistic decoration, being strictly private this year, as we believe were the distributions in all the convents throughout Montreal, we can only give those among our readers, interested in the subject, the names of the graduates,

as well as of the fortunate winners of His Excellency's Medals, and the various other prizes presented on the occasion. The ceremony, which immediately preceded the return of the pupils to their homes, took place on Thursday forenoon 27th June. Of the two beautiful medals so graciously presented by His Lordship the Earl of Dufferin, the first was adjudged to Miss J. Bruneau, of L'Assomption; the second to Miss E. Dunn, of Montreal; the medals being accompanied by letters of congratulation from His Excellency's secretary. The following young ladies graduated with, all the honors of their course: The Misses Bond, J. Bruneau, E. Dunn of Montreal; M. Archambault of L'Assomption; V. Royal of Manitoba, J. Trudel of Montreal; E. McDonald, M. Carrol, Alice Meyers of New-York; Annie Myers of Rouse's Point; E. Decarie and M. L. Leblanc of Montreal. These young ladies received each from the Rev. Mother General of the Institution, a handsome souvenir, proof of the satisfaction their conduct and proficiency had given during the course of the scholastic year. To Miss E. McDonald was awarded the gold medal for mathematics and to Miss M. Archambault, that given for English conversation. The Edward Murphy prize, a valuable microscope and accompanying volume, was adjudged to Miss Alice Myers; and the medal presented by Mrs. Edward Murphy for superiority in domestic economy and culinary art, was won by Miss Alice Myers. Silver medals were also bestowed on the young ladies who had distinguished themselves in the second course; and numerous prizes were distributed among the deserving members of the junior classes with an impartiality calculated to stimulate all alike to future industry and effort. A brief religious ceremony then followed in the convent chapel at which the parents and friends assisted, and during the course of which the young pupils laid their flowery crowns (emblems of merit) at the foot of the altar, accompanied, we doubt not by the still more precious offering of their guileless young hearts.

#### Prince Albert Schools.

The annual meeting of the above schools, was held in the Senior School, on Friday 23d June a large number of the scholars being present. The chair was occupied by Robt. Bickerdike, Esq. Mr. Buckingham addressed the little ones in a very happy manner. Then the prizes and presents from the Trustees were presented.

The first prizes were taken by Annie P. Chambers, Helen Bickerdike, and Peter Burkett; the second, by Mary Parker, Carrey Naughton, and Annie Aiken; and the third by John Williams, Maggie MacGlashan, and Julia Melton.

Mr. E. T. Chambers, Principal, addressed a few well chosen words, and explained the method by which the prizes were awarded. He then called upon certain of the children to read and recite, which they did very creditably.

Mr. Mosley (of Messrs. Mosley and Ricker) afterwards addressed the meeting, which by this time

assumed that proportion as to fill the room to overflowing. He spoke favorably of the excellent standing of the school and promised to give several prizes for competition next year. He assured the scholars that the recitations he had heard would compare very favorably with the highest city schools. The scholars of No. 2 branch, sang a song and chorus, and after singing "God save the Queen" and giving cheers for the Trustees, the Principal and the teachers, the meeting broke up. Copies of drawings executed by the pupils were exhibited and admired. The two schools under the management of the St. Henri School Commissioners are attended on an average by nearly two hundred children, who are taught by an efficient staff of five teachers.

## POETRY.

### Two Little Pairs of Boots

Two little pairs of boots, to-night  
Before the fire are drying,  
Two little pairs of tired feet  
In a trundle bed are lying;  
The tracks they left upon the floor  
Make me feel like sighing.

Those little boots with copper toes,  
They run the livelong day!  
And oftentimes I almost wish,  
That they were miles away,  
So tired am I to hear so oft  
Their heavy tramp at play.

They walk upon the new-plowed ground,  
Where mud in plenty lies;  
They roll it up in marbles round  
And bake it into pies;  
And then at night upon the floor  
In every shape it dries.

To-day I was disposed to scold;  
But when I see to-night,  
Those little boots before the fire,  
With copper toes so bright,  
I think how sad my heart would be  
To put them out of sight,

For in the trunk up stairs I've laid  
Two socks of white and blue;  
If called to put those boots away,  
O God, what should I do?  
I mourn that there are not to-night  
Three pairs instead of two.

### Smithsonian Institution,

WASHINGTON, D. C., May 14, 1878.

On behalf of the Regents of the Smithsonian Institution, it becomes my mournful duty to announce the death of the Secretary and Director of the Institution, JOSEPH HENRY, LL. D., which occurred in this city, on Monday, May 13th, at 12.10 o'clock, p. m.

Professor HENRY was born in Albany, in the State of New-York, December 17th, 1799. He became Professor of Mathematics in the Albany Academy in 1826; Professor of Natural Philosophy in the College of New Jersey, at Princeton, in 1832; and was elected the first Secretary and Director of the Smithsonian Institution in 1846.

He received the honorary degree of Doctor of Laws, from Union College in 1829; and from Harvard University in 1851.

He was President of the American Association for the Advance-

ment of Science in 1849; was chosen President of the United States National Academy of Sciences in 1868; President of the Philosophical Society of Washington in 1871; and Chairman of the Light-House Board of the United States in the same year; the last three positions he continued to fill until his death.

Professor HENRY made contributions to science in electricity, electro-magnetism, meteorology, capillarity, acoustics, and in other branches of physics; he published valuable memoirs in the transactions of various learned societies of which he was a member; and devoted thirty-two years of his life to making the Smithsonian Institution what its founder intended it to be, an efficient instrument for the "increase and diffusion of knowledge among men."

M. R. WAITE.

Chancellor of the Smithsonian Institution.

**Smithsonian Institution,**

WASHINGTON, D. C., May 17, 1878.

At a Special Meeting of the Board of Regents of the Smithsonian Institution, held this day, Professor SPENCER FULLERTON BAIRD, for many years the Assistant Secretary of the Institution, was duly elected as the Secretary of the Smithsonian Institution, to succeed the late Professor JOSEPH HENRY.

M. R. WAITE,

Chancellor of the Smithsonian Institution.

**What should our Boys read?**

HON. B. G. NORTHROP.

Teachers can largely determine the reading of their scholars out of school. It is important not only to awaken a love of books, but to guide in their selection and form a taste for profitable reading. Scholars should be encouraged to have some good book always at home, in which they read a little every day. In school they should be invited to tell what they have read. To give an epitome of one's reading is an admirable school exercise. The pupil will peruse a book with ten fold greater interest, when expecting to epitomise his author before the school. As a drill of memory and in language it is a most beautiful exercise, and is one that is sure to interest as well as profit the school. Having experienced these advantages in my own teaching and witnessed them in many schools, I strongly recommend this practice, already adopted by some, to all the teachers of Connecticut. Instead of giving here a list of books for all the youth of the State, I advise teachers to recommend well known works in adaptation to the age, taste and advancement of individual pupils, usually those which they themselves have read, that they may the better appreciate and criticise the epitomes of the same by the pupils.

An eminent teacher recently asked a class of fifty-seven boys, "what is the last book you have read?" One answered "I haven't read any lately;" another, "I don't remember;" "Can't tell," said a third. But the great majority were able to give an account of their reading which was most creditable to their teacher, evincing his wholesome influence over his pupils outside of the school-room. Twenty-seven had been reading works of history and biography, including Life and Times of Benjamin Franklin, Life of Prescott, Higginson's History of the United States, Irving's Washington, Lives of Cicero, Hannibal, Cæsar, Xerxes, Alexander, Ferdinand and Isabella. Three boys were reading Dickens' History of England and one was enjoying Bancroft's ten volume History of the United States, another had just read three volumes of Macaulay's Essays. Shakespeare, Bunyan, Bulwer, DeFoe, Jules Verne and Oliver Optic had one reader each. What Career, Avis, Marble Faun, History of Propellers, Management of Horses, Seven Oaks, Miss Mühlbach's Empress Josephine, Ways of the World, Half-Hour Natural Science Series, American Explorers, Little Men, Speke's Sources of the Nile, Wide Wide World, Waverly, Fortunes of Nigel, and Quentin Durward were also named.

I invite our teachers to test their scholars in the same way during the present year, and to send me lists of the books read by their pupils. With the coöperation of teachers and school officers we may learn what the youth of Connecticut are reading. This effort will enlist the attention of parents and secure their aid in the selection of better books and periodicals for their children, and thus check a growing evil and accomplish great good. Teachers should foster a taste for such choice literature, that travels, histories and biographies

books, of science, genuine poetry, essays and choice romances shall take the place of the "blood and thunder" stories and other emphatically *weekly* novelettes of the day.

Social reading should also be encouraged. The industry in many a sewing circle has been enlivened by well-selected reading by one of their number. The same genial influence should often cheer the circle around the family hearth. "Reading circles" ought to be maintained in every town, where selections in prose or poetry, often a play of Shakespeare, the several parts having been previously assigned and made the subject of careful private study and drill, are rehearsed together. These Reading Clubs, where each thoroughly studies his part or selection till he becomes so possessed of its thought and spirit as to render it in the best style he can command, not only cultivate the art of elocution, but improve the taste and develop a higher appreciation of the best authors. Aside from the educational value of this class of evening schools, their social influence is happy. Divided as the residents of our rural districts too often are, by party or sect, by prejudice or neighborhood difficulties, every influence tending to fraternize the people should be welcomed; every association where they meet on common ground mutual improvement, and where kindly feeling and social amenities are cultivated, should be encouraged.

The teacher cannot awaken love of books unless he himself continues to be a student. Any one who thinks he knows enough to teach even the humblest class should never profane the school-room by his presence. One who has ceased to be a learner cannot be a good teacher. The more one has discovered, the more he wants to know. The truly learned man feels the greatness of his ignorance and the littleness of his knowledge as but a drop out of the boundless ocean of truth. It has been well said, "The greater the circle of our knowledge, the greater the horizon of ignorance that bounds it. The pride of wisdom therefore is the proof of folly." Arrogance and assurance are not the fruits of true learning. Yet from the days of Johnson to Dickens "the school-master" has been characterized in our literature as magisterial, opinionated, and dogmatical. Associated as teachers are with beginners, or at least inferiors in attainments, seldom called to the grapple of mind with mind as in forensic contests with equals or superiors, there is great danger to imbibing the spirit of the ceit and dogmatism, even when only getting deeper in the old ruts. What is drier than an old, opinionated, self-satisfied, unprogressive school-master? He despises "all your new-fangled notions." He glories in the "good old ways." His fluent routine feeds his complacency, though it really enervates his own mind and stupifies his pupils. Whoever either in the college or primary school has ceased to learn, should by all means stop teaching, for children need impulse even more than instruction. Any one who no longer thirsts for higher knowledge, cannot fitly lead even the youngest to its fountain. As a teacher, one must be progressive, or cease to be at all. The mind that stagnates must soon retrograde, and such a teacher would stultify rather than stimulate his class. Happily there are now many teachers worthy of their work, whose ideal is high and who are enthusiastic in the life-long work of personal culture. The efficient coöperation of such teachers I confidently anticipate in the efforts now making to stimulate a taste for books, and aiding our youth in the selection of the best books. One who early acquires a taste for reading and a love of books, will realize that his education is only begun when his school days are ended. To complete it will be the aim and ambition of his life. Let his calling be what it may, with an insatiable desire for knowledge he will find leisure for self-improvement. The many instances of self-educated men whose eminence and success are due to an early taste for reading, should be given to the boys who are just entering the active pursuits of life, and who are so apt to think that they can no longer find time for self-culture. But is the little leisure they have well improved? Should the evenings be idled away, because the days be occupied with business or labor? The youth whose teachers have trained them to always have a good book at hand for old moments, will enter the practical callings of life with a habit of inestimable importance.

**School Discipline.**

THOS. J. CHAPMAN.

Good government lies at the base of all true excellence in the school-room. Unless a proper discipline is enforced there, it will be impossible to succeed. Order is heaven's first law. The school where good order is not enforced, is a failure; it is the plain of Shinar at the confusion of tongues; there may be movement there, but not progress. The first care of the teacher should be given to securing good order.

Not many rules, but good ones, and these well adhered to, should be the maxim in organizing a school. There should be no looseness in framing rules for the government of a school, and above all things there should be no looseness in the enforcement of these rules when they are once enacted. So long as a regulation remains as one of these rules of the school, it must be carefully observed; if it is an improper rule it should be repealed promptly, and the pupils should be informed that it has been so repealed, that they may not imagine that the teacher is winking at a violation of the school regulations, when he no longer corrects them for disregarding it.

Children are very quick to notice any dereliction or neglect of duty on the part of the teacher. That individual should have well-settled principles to govern his own conduct both in the school-room and out of it. A vacillating spirit that shifts about like the sands of the desert before every breath of wind, is contemptible even in the eyes of children. Besides, if the teacher is thus vigorous in the treatment of self, he may consistently be firm in his demands upon others. Many teachers overlook this. They require certain things of their pupils which they themselves are not willing to perform. They forbid certain privileges to their pupils, which they themselves indulge in. It certainly looks a little unseemly in a teacher to pronounce his *ukase* against the use of tobacco in school in a breath that is itself tainted with the narcotic; or to dwell upon the bad effects of reading works of fiction, when at the same time may be found under the lid of his own desk some of the most silly and pernicious specimens of this kind of literature. So, too, on the streets and in society, teachers sometimes forget the propriety that should mark their deportment, and perhaps in one unlucky hour more than undo all the work of days.

The teacher should not allow the slightest infraction of law to pass unnoticed. These small offences, if allowed to pass without remark, will only open the way to greater. They are the little breaks in the dyke, which a man might at first close with his hand, but through which will ultimately rush a flood of waters that may drown a city. Many a school has been ruined by not guarding against these least appearances of evil. Not that a teacher should be tyrannical in the administration of his duties. But to be unyielding in the enforcement of reasonable and just laws is not tyranny. The laws of nature are inflexible. There can be no infraction of them not even the least; that is not followed by the due penalty; yet he is a foolish man who will charge God with tyranny and injustice.

The penalty for violating a law should be in proportion to the heinousness of the offence. There should be degrees of punishment in the school room as there are in nature and in civil governments. All violations of the natural or of the statute law are not followed by the same degree of punishment. Let the modes of punishment be what they may, these distinctions should be observed. A degree of punishment disproportioned to the crime committed, exerts an evil instead of a salutary influence. A century ago the death penalty was inflicted for comparatively slight infractions of the law. The forging of a man's name or the stealing of a few shilling's worth was visited with capital punishment. In those days gibbets stood at nearly every cross-road in England, and bodies swinging in chains were every-day sights; yet this severity of punishment, instead of making crime less frequent, seemed only to foster it, and the more people were hanged, the more those who remained seemed to deserve hanging.

School discipline, as every other discipline, should be enforced not by administering punishments alone, but by properly rewarding the meritorious. Whether or not the hope of reward is a proper incentive to study, it, as well as the fear of punishment, may be properly held out as a stimulus to good conduct. This reward may be but a smile or a kindly word of approbation, or it may be such other more tangible and enduring mark of approval as the teacher may see fit to bestow. Indeed, it would be more pleasant to dwell upon the hopes and pleasures of reward than upon the dread and horrors of punishment. The latter is a gorgon, against whom it would be pleasant if it were possible, to close the school-room doors entirely. It is by a system of rewards and punishments that the Almighty governs the world. Some are kept in bounds through fear of the latter, and some through hopes of the former. A few lofty spirits profess to be influenced by neither of these considerations. They claim to do right because it is right. Those who mount to that elevated plane of thought and feeling are few indeed. It may be the proper standpoint; but it is not, and doubtless, never will be, the popular one. It would perhaps be out of the question to get children to act out of such a purely abstract principle; hence, we may well influence their minds to correct actions by holding out to them the hope of reward and the fear of punishment. But compliance with the school code is the rule, and violations of it the exception. To be continually stopping to award some recognition of merit in this case would seem to be impracticable. And so it would. But a pleasant word or a meaning smile may be repeated without trouble many times in a day. Besides this, a constantly cheerful and agree-

ble manner on the part of the teacher would be to his pupils a perpetual source of pleasure, and a continual reward. In a school that has been properly instructed and cared for, this endorsement by the teacher of their conduct and performances, will open up springs of delight and satisfaction in the bosoms of the pupils themselves. This is of itself no small reward. Our own consciousness of having done well and deserved well, is one of the sweetest returns for doing our duty.

"One self approving hour whole years outweighs  
Of stupid starers and of loud huzzas."

School punishments range in severity from the mere word of rebuke or the denial of some wanted privilege, to the infliction of corporeal pains. As has been said, the degree of punishment must be carefully proportioned to the enormity of the crime. Crimes can perhaps differ in enormity only as to their consequences, and not as to their wrongfulness in the abstract. But some offences are not crimes; as, for instance, mere inattention, negligence, forgetfulness, etc. For such offences no sane teacher would inflict as severe punishment as for profanity, rebellion, abusing a schoolmate, falsehood, etc. The teacher should never inflict punishment unless he is fully satisfied of the guilt of the party. He should never punish a child on suspicion. What he himself sees of course needs no corroboration; what he does not see, should be proved beyond all cavil. Better that ten guilty ones should be made to suffer. One child's word against another's should never be taken as conclusive evidence. This is simply just; while at the same time it exerts a good influence in the school to have it understood by the pupils that one has as much the confidence of the teacher as another. Where a pupil is known to deal in untruth, there is, of course, an exception.

As has been already said, everything almost in the way of success in the school-room depends on good government. To understand how to control a school properly is well worthy the attention of the teacher. Much may be learned from book and from the experience of others; but, after all, the teacher must study the human nature of children, and then exercise his best judgment in every case that may arise. It is so easy to make a mistake; so easy to be misled by a momentary passion, through ignorance, or by some undue influence. Against these chances the teacher must be constantly on his guard. The system of school discipline as practiced by Wackford Squeers, has perhaps entirely disappeared from civilized society. Even the slightly more genial schoolmaster of Oliver Goldsmith has, we hope, but few counterparts among those who are now engaged in the instruction of the young. Instead of schools conducted on the principles of Dotheboys Hall and "sweet Auburn," they are now conducted on principles and maxims more in accordance with the spirit of the age, with humanity and enlightened reason. Mutual confidence and respect exist between teacher and pupil. The child is taught what is right, and to do the right; he is taught to regard himself as a rational, responsible creature, and not a mere machine that is to be wound up every morning like a twenty-four hour clock, and left to run all day according to mechanical principles. Children thus trained and taught, grow up with proper views of individual responsibility, of just government, of their mutual relationship to all the world of mankind. Schools conducted on these principles are not difficult to govern. They are to a great extent self-governing. They are miniature republics, where each individual possesses an immediate interest in the conduct of all. Such schools make good pupils and eventually good citizens. In a form of government like ours, the responsibilities that await all, and the lofty positions of usefulness that await many, should not be lost sight of in the education of our youth. We must provide for the future safety and permanency of our free institutions by properly educating those who are soon to take the places of the present generation—by so training them that they may have a due regard for law, for order, for mutual rights, and individual responsibilities. —*Pennsylvania School Journal.*

### The relative position of drawing in elementary education.

Mental development is the end sought by all study, and the relative position of the several branches comprising a system of education is determined by a relative value, to the masses, of the kind and degree of mental training afforded by a study of each branch. Reading is assigned the first position, for the reason, that its study develops the mind to an appreciation of the significance of the arrangement of certain arbitrary characters, and since written next to spoken language is the readiest means of communication, the development of the mind in many directions depends largely upon a knowledge of reading, therefore it is the most nearly universal means of mental development.



Each study is constantly arraigned for judgment, as it were, and is compelled to answer two questions; namely, what faculties of the mind is it calculated to develop? and of what practical use are these faculties? I am well aware that this is no new theory, and that every real educator is constantly striving to incorporate those studies into a system of education and to invent such methods of instruction as will give the maximum practical mental discipline to the masses. There is one branch of education, however, that has not received its due share of consideration in this particular. I refer to the study of drawing. I would have this study subjected to the same tests and stand or fall precisely as I would have every other. But I would not have the instruction in drawing violate every law of development and all our efforts turned to the mere production of apparent results, while the main and only legitimate end is lost sight of entirely.

In order that we may apply the proper tests let us enquire: 1st. What drawing is? 2d, how we may learn to draw? and 3d, of what use a practical knowledge of drawing would be to the masses in the ordinary pursuits of life?

1st. Drawing is the disposition of lines upon a flat surface in such a way that when seen they create the same sense impression as does the object which they represent.

2d. We see by rays of light entering the eye and impinging upon the retina, these form an image of that from which they are reflected. This image is flat and is composed of masses of different colors and different degrees of light, and because it is an image it cannot be like the object which it represents unless that object is a flat surface and parallel to the surface of the image. The picture of an object is flat and because it is so its normal position is parallel to the retina, and because it is parallel to the retina the image of the picture will be like the picture itself. Learning to draw then is a development of the mind to an appreciation of the significance of the arrangement of lines upon a flat surface in such a way that their image upon the retina will be like the image of the object which they represent.

3d. Since written or spoken language is quite inadequate to describe the form and position of even very simple object, and since drawing is the language of form its office is to assist written language when it is most deficient. The practical advantages of a knowledge of drawing are general admitted, but I think that we do not begin to appreciate the advantage it would be to every one, and particularly to the mechanic and laboring classes if they had a command of drawing sufficient to enable them to describe form readily and with precision. The artisan's whole business is dealing with form and all sorts of makeshifts are resorted to and much valuable time is lost in attempting to convey ideas of form which a few strokes of the pencil in the hands of one who could draw, would make most plain. Furthermore drawing is a highly important factor in the education of the manufacturing classes, because, as the study and practice of drawing is a study of form and its description, it trains the mind to a higher appreciation of the beauty of form and the value of the harmony of proportions. There are hundreds of thousands of people who have daily and hourly need of a knowledge of drawing but who do not have occasion to write a dozen lines a month.

Every one will admit, I think, that it would be difficult to over-estimate the advantage of a practical knowledge of drawing; but there is a wide spread and firmly-rooted prejudice that such a result of teaching drawing to every pupil is impossible in the time that can be devoted to it in the common schools, if it is possible at all with any amount of time. It will be found upon examination that there is a striking analogy between the mental processes of learning both to read and to draw. Each is a training of the mind to the appreciate the form and significance of the arrangement of images upon the retina, which in no wise resemble that which they represent. In both the physical eye and hand perform the offices of mechanical contrivances. The mind interprets both the form and significance of the images upon the retina and directs the hand in the reproduction of these images. If the mental processes of learning to read and to draw are so similar, then the methods of instruction should be similar and must deal with the mind and not with the eye or the hand. The teaching of reading is the more difficult, however, as the child tries to learn, not only the sound and significance of thirty-six arbitrary characters besides various signs and marks, as well as the sound and significance of an almost infinite number of combinations of these characters and marks; but to learn them so well that they are recognized with the greatest rapidity and sounded with the greatest exactness. While learning to draw is simply learning to arrange lines on a flat surface in such a way that they when seen create the same sense impression as does the object when it is seen; or in other words it is simply learning that the picture is not like the thing itself but is the image of the thing seen reproduced upon a flat surface. Besides the fact that learning to draw is really a very simple process it has the advantage that every one desires to draw, while no one, or but few, have any desire to read, until they have learned how, and some-

times not even then; and because of this desire to draw as soon as this one point is made the mind begins to create mental pictures. If then learning to draw is a mental process so similar to learning to read, and if it has the advantages I have named there can be no reason why we do not attain to similar results in proportion to the time devoted to its study except that the methods of instruction are not adapted to the end sought. This is, I think, really the case since all the popular methods of instruction aim to obtain the desired results by copying, and since a picture is like its image the mind can not be developed by the methods to comprehend the difference between the solid object and its image, and, therefore, but very few ever attain to any practical skill in drawing, and all are hampered by such study. Hence the skepticism and the high talk about art indulged in on the one hand by those who have looked for practical results of the teaching of drawing in the common schools, and on the other hand by those who had some patent method of wasting time and in the fruitless attempt to teach drawing by copying.—*Ohio Educational Monthly*

A. E. M.

## MISCELLANY.

*How to Study Science.*—The method of study is also important, and just here is where many otherwise good institutions fail. Every student of science should meet Nature at first hand, and learn to observe her phenomena for himself. Lectures and text-books are but minor accessories to study; in the sciences they play a wholly subordinate part; in the laboratory, the field, and the museum, the chief work is to be done. No matter what branch of science is to be pursued, the student from the very first must meet it face to face. The biological sciences ought to be studied in the field, collecting; in the museum classifying; in the laboratory, with the microscope and the scalpel. Far too often is the study of natural history degraded into a mere memorizing of classifications; as if the transitory part of science were more valuable than the permanent! The student must see, handle, dissect, and investigate, for himself. He is to study the phenomena of life, and not merely the external appearance of a lot of stuffed specimens. Chemistry, and physics also, is to be studied chiefly in the laboratory. It is not enough for a student to see experiments, he must himself perform them. Thus only can he learn the true scope of these great sciences. By a proper drill in qualitative analysis, he learns to observe closely, and to reason from his facts to their interpretation. Quantitative analysis gives him accuracy of manipulation, and an insight into the absolute value of experiment. This insight also results from delicate practice with instruments of precision in physics; a kind of exercise of the very highest educational value. If the course of study in any science can be capped by an original research leading to the discovery of new facts, so much the better. In a German university the candidate for a doctoral degree in science is absolutely required to carry out such a research, and to submit a dissertation upon it. This is not a severe requirement—every student who has been decently trained is able to come up to it, all the popular notions about the mysteriousness of scientific research to the contrary notwithstanding. Why should we not aim to equal the German standard?—*Prof. F. W. Clarke, in Popular Science Monthly.*

*Manners.*—Men succeed in their professions quite as much by complaisance and kindness of manner as by talent. Demosthenes, in giving his well-known advice to an orator—that eloquence, consisted in three things, the first 'action,' the second 'action,' and the third 'action'—is supposed to have intended manner only. A telling preacher in his opening remarks gains the good-will of his hearers, and makes them feel both that he has something to say and that he can say it—by his manner. The successful medical man, on entering a sick room, inspires into his patients belief in himself, and that hope which is favorable to longevity—by his manner. Considering that juries are scarcely personifications of peace and reason unmingled with passion or prejudice, a barrister cannot afford to neglect manner if he would bring twelve men one after another to his way of thinking. Again, has the business man any stock in trade that pays him better than a good address? And as regards the survival of the fittest in tournaments for a lady's hand, it is not a 'natural selection' when the old motto "Manners make the man" decides the contest. At least Wilkes, the best-mannered but ugliest man of his day, thought so. 'I am,' he said, 'the ugliest man in the three kingdoms; but if you give me a quarter of an hour's start, will gain the love of any woman before the handsomest.' If kindness of disposition be the essence of good manners our subject is seen at once to shade off into the great one of Christianity itself. It is the heart that makes both the true gentle-



man and the great theologian. The Apostle Paul (see speech delivered on Mars' Hill) always endeavored to conciliate his audience when he commenced addressing them. And his letters, as well as those of his fellow-apostles, are full of sympathy and consideration for every one's feelings, because he had learned from him whose sympathy extended even to the greatest of sinners.—*Chambers' Journal*

*Never Forget Anything.*—A successful business man told me there were two things he learned when he was eighteen, which were ever afterwards of great use to him, namely: "Never to lose anything and never to forget anything." An old lawyer sent him with an important paper, with certain instructions what to do with it. "But," inquired the young man, "suppose I lose it; what shall I do then?" "You must not lose it!" "I don't mean to," said the young man, "but suppose I should happen to?" "But I say you must not happen to I shall make no provision for such an occurrence; you must not lose it!"

This put a new train of thought in the young man's mind, and he found that if he was determined to do anything he could do it. He made such a provision against every contingency that he never lost anything. He found this equally true about forgetting. If a certain matter of importance was to be remembered, he pinned it down on

his mind, fastened it there, and made it stay. He used to say: "When a man tells me that he forgot to do something I tell him he might as well have said "I do not care enough about my business to take the trouble to think of it again." I once had an intelligent young man in my employment who deemed it sufficient excuse for neglecting any important task, to say "I forgot." I told him that would not answer. If he was sufficiently interested, he would be careful to remember. It was because he did not care enough that he forgot. I drilled him with this truth. He worked for me three years, and during the last of the three he was utterly changed in this respect. He did not forget a thing. His forgetting, he found, was a lazy and and careless habit of the mind which he cured.

**Wanted.**

For the Municipality of Percé, County of Gaspé, a Teacher holding a Model School Diploma French and English. Salary \$200.

Address,

WILLIAM FLYNN,  
Secty.-Treasurer,  
Percé.

**ABSTRACT FOR THE MONTH OF JUNE, 1878.**

OF TRI-HOURLY METEOROLOGICAL OBSERVATIONS TAKEN AT MCGILL COLLEGE OBSERVATORY, HEIGHT ABOVE SEA LEVEL, 187 FEET.

Day.	THERMOMETER.				BAROMETER.				+ Mean pressure of vapor	† Mean relative humidity.	WIND.		SKY CLOUDED IN TENTHS.			Rain and snow melted.	Day.
	Mean.	Max.	Min.	Range	Mean.	Max.	Min.	Range			General direction.	Mean velocity in m. p. hour.	Mean	Max	Min.		
Sunday 1	66.17	74.3	55.9	18.4	30.1847	30.260	30.100	.160	.3050	48.9	s.	9.5	1.9	6	0	1	
2	77.2	56.0	21.2	.....	.....	.....	.....	.....	.....	.....	s. w.	6.7	.....	.....	.....	2 Sunday	
3	70.02	77.1	62.0	15.1	29.8537	29.935	29.770	.165	.4790	65.9	s.	10.0	4.9	9	0	3	
4	67.45	75.3	62.5	12.8	29.7076	29.755	29.641	.114	.5010	75.4	s.	12.1	6.4	10	0	0.37	
5	54.11	66.2	46.0	20.2	29.8500	29.990	29.713	.277	.2999	70.5	w.	13.0	8.4	10	3	0.01	
6	48.15	56.1	40.0	16.1	29.9891	30.054	29.943	.111	.1894	57.5	n. w.	11.2	1.9	7	0	6	
7	49.62	55.3	41.8	13.5	29.9426	30.012	29.858	.154	.1841	52.1	w.	7.8	7.1	10	0	7	
8	53.37	63.6	46.9	16.7	29.7484	29.827	29.626	.201	.2917	72.1	.....	5.5	8.9	10	2	0.01	
Sunday 9	.....	64.2	48.0	16.2	.....	.....	.....	.....	.....	.....	N. E.	7.6	.....	.....	.....	Inapp.	
10	57.86	64.1	48.0	16.1	29.7166	29.753	29.687	.066	.2860	61.1	s.	6.2	7.5	10	2	10	
11	58.19	64.1	52.4	11.7	29.7174	29.797	29.671	.126	.3332	69.5	n.	6.1	9.2	10	6	Inapp.	
12	56.67	65.5	50.9	14.6	29.8705	29.963	29.791	.172	.3574	73.1	w.	5.7	8.1	10	5	0.03	
13	64.02	71.2	54.8	16.4	30.0472	30.100	29.979	.121	.3394	58.7	w.	5.8	6.0	10	2	Inapp.	
14	69.40	77.0	53.9	23.9	30.0879	30.159	30.016	.143	.3389	49.9	s. w.	6.9	1.4	4	0	14	
15	70.47	79.4	61.6	17.8	29.9219	29.990	29.844	.146	.3601	49.1	s. w.	11.8	1.2	8	0	15	
Sunday 16	.....	73.0	62.2	10.8	.....	.....	.....	.....	.....	.....	s. w.	10.0	.....	.....	.....	0.05	
17	63.87	68.1	58.4	9.7	29.7694	29.862	29.682	.180	.4642	78.4	s. w.	13.2	7.2	10	1	0.09	
18	60.97	67.9	63.3	4.6	29.8842	29.919	29.848	.071	.3486	65.9	w.	8.8	6.2	10	1	18	
19	66.45	77.2	55.2	22.0	29.8369	29.886	29.794	.092	.3465	55.1	w.	12.1	3.7	9	0	19	
20	69.79	79.1	59.3	19.8	29.7659	29.811	29.719	.092	.3562	48.4	w.	12.4	4.7	10	1	20	
21	69.79	77.0	63.0	14.5	29.7105	29.738	29.673	.062	.4572	63.4	s.	7.0	9.0	10	2	21	
22	68.41	75.3	61.5	13.8	29.8147	29.833	29.760	.073	.4307	62.6	s. E.	12.1	8.7	10	6	0.02	
Sunday 23	.....	76.1	58.2	17.9	.....	.....	.....	.....	.....	.....	s.	9.0	.....	.....	.....	0.24	
24	65.36	71.1	67.5	9.6	29.6611	29.705	29.617	.088	.4959	79.7	w.	6.5	9.1	10	6	0.04	
25	60.81	68.9	50.1	18.8	29.7292	29.910	29.628	.282	.3211	61.9	n.	15.4	3.9	10	0	0.03	
26	59.22	69.1	48.0	21.1	30.0020	30.040	29.952	.088	.2855	57.0	n. w.	8.5	3.7	10	1	26	
27	67.82	81.2	55.7	25.5	29.9435	29.983	29.882	.101	.5219	76.0	w.	11.5	6.1	10	1	0.29	
28	73.51	81.0	66.2	14.8	30.0576	30.095	29.999	.106	.6114	74.7	w.	5.1	4.0	10	0	28	
29	76.81	88.0	67.2	20.8	30.0739	30.123	30.017	.106	.6035	62.5	w.	7.5	0.0	0	0	29	
Sunday 30	.....	60.0	74.6	15.4	.....	.....	.....	.....	.....	.....	w.	5.0	.....	.....	.....	30 Sunday	
Means.....	63.692	72.30	55.84	16.66	29.8754	.....	.....	.1319	.38031	63.58	.....	9.00	5.57	.....	.....	Means.	

\* Barometer readings reduced to sea level, and to temperature of 32° Fahrenheit, † Pressure of vapor in inches of mercury. ‡ Humidity relative, saturation 100. § Observed.

Mean temperature of month, 63.69. Mean of max. and min. temperatures, 64.17. Greatest heat was 90.0 on the 30th; greatest cold was 41.8 on the 7th,—giving a range of temperature for the month of 48.2 degrees. Greatest range of the thermometer in one day was 25.5 on the 27th; least range was 9.6 degrees on the 24th. Mean range for the month was 16.7 degrees. Mean height of the barometer was 29.8754. Highest reading was 30.260 on the 1st; lowest reading was 29.617 on the 24th; giving a range of 0.643 in. Mean elastic force of vapor in the atmosphere was equal to .38031 in. of mercury. Mean relative humidity was 63.6. Maximum relative humidity was 94 on the 4th and 00st. Minimum relative humidity was 30 on the 14th. Mean-velocity of the wind was 9.0 miles per hour; greatest mileage in one hour was 21 on the 20th. Mean direction of the wind, west, south-west. Mean of sky clouded 56 per cent.

Rain fell on 14 days. Total rainfall, 1.18 inches.