

THE
MCGILL UNIVERSITY
MAGAZINE.



VOL. 1, No. 2.

APRIL, 1902.

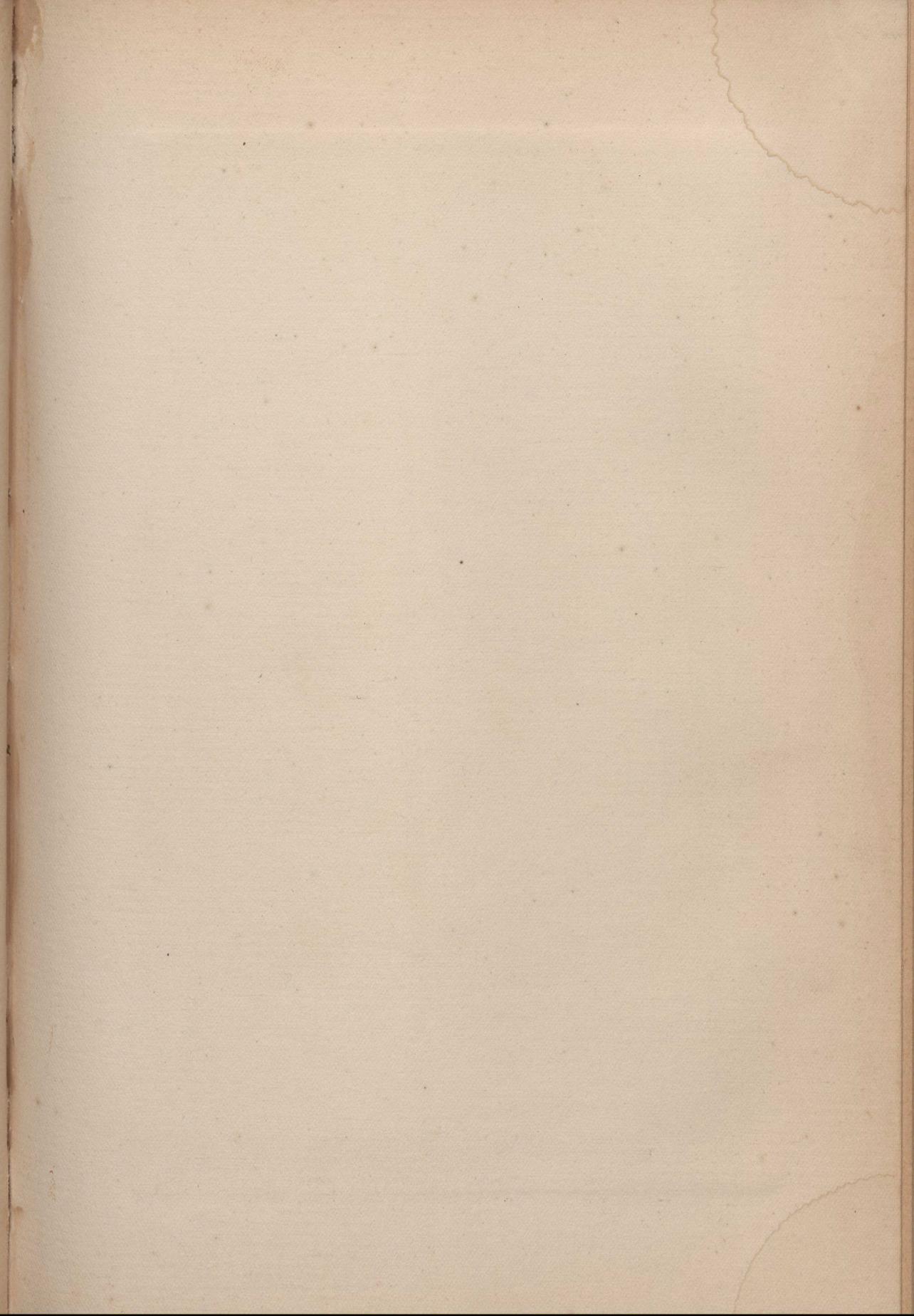
MONTREAL:
A. T. CHAPMAN.

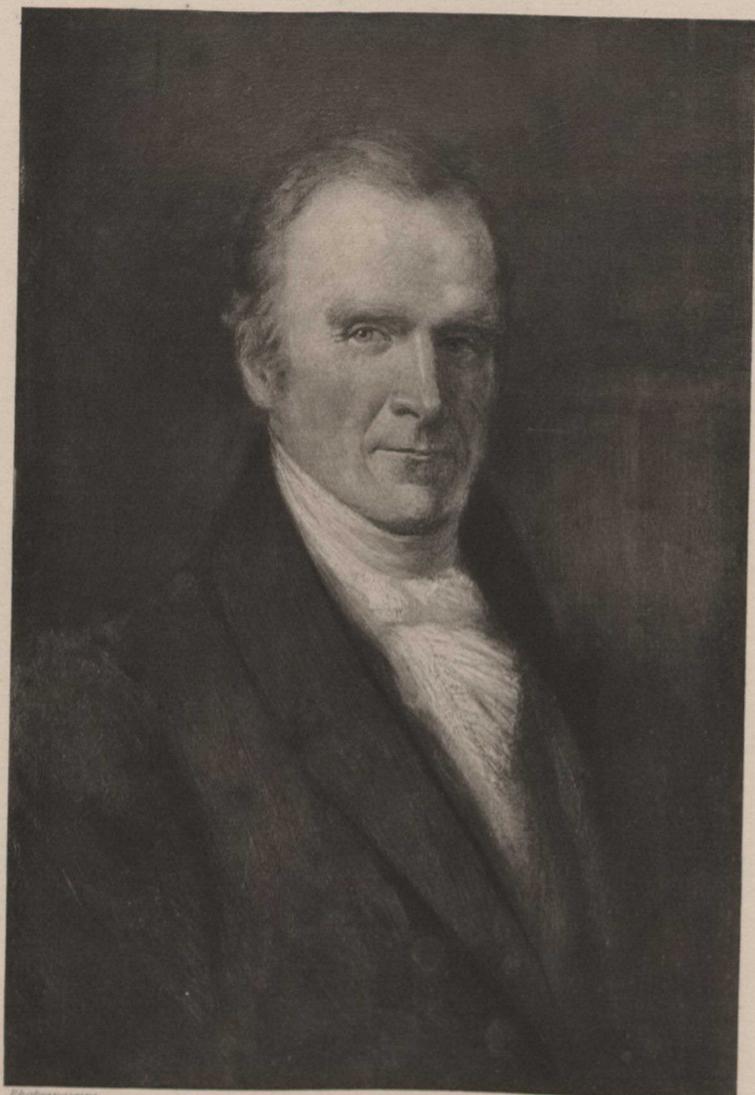
PRINTED AT THE
WITNESS PRINTING HOUSE.
MONTREAL.

CONTENTS.

Portrait of Dr. William Robertson	<i>Frontispiece.</i>	
	PAGE	
Editorial	The Editor-in-chief.	167
Dr. William Robertson	R. F. Ruttan, Med., '93.	178
Imperial Federation	G. R. Parkin.	180
The Mammoth Cave at Night (Poem). William McLennan, Law '81.		194
Commercial Education	A. W. Flux.	195
University M.P.'s in Canada	A. H. U. Colquhoun, '86.	206
The Humour of Examinations	John Cox.	207
The Grand Cañon of Arizona	Frank Carter.	218
Deorsum (Poem)	Chas. E. Moyse.	231
Stephen Phillips	Susan Elizabeth Cameron, '95.	234
The Theory of Evolution	E. W. MacBride.	244
The Microscope of Time (Poem)	H. S. Williams, '01.	263
The Wilds of Siberia	C. B. Kingston, Sc. '92.	265
"Thou wast not born for death" (Poem)	S.	275
A Cicero Manuscript	Chas. E. Moyse.	276
McGill in South Africa	A. S. McCormick, Med. '05.	281
Undergraduate Societies.	H. S. Williams, '01.	287
Undergraduate Societies	E. Irving, '02.	291
Athletics	P. Molson, '01.	303
College Life at Bryn Mawr	Harriet Brooks, '98.	306
Radcliffe—Through McGill Spectacles	Muriel Carr, '98.	308
With the R. C. R. in South Africa.	A. S. McCormick, Med., '05.	314
Graduate Societies	Susan E. Cameron, '95.	320
James R. Thompson, B.A., B.C.L. (<i>In Memoriam.</i>)	D. S. Moffat, '94.	325
Notices of Graduates		327

[All articles and other literary communications should be addressed to the Editor-in-chief, 802 Sherbrooke St., Montreal, or to the Secretary, Royal Victoria College, Montreal. Annual subscribers who wish to renew their subscriptions, are requested to fill up the enclosed form, and send it, together with one dollar, to the Hon. Treasurer, 31 Ontario Avenue, Montreal. The next issue of The McGill University Magazine, being the first part of Vol. II., will appear on or about Dec. 1st., 1902.]





Photogravure

John Andrew P. Van Benthuysen

William Robertson

1782 - 1862

*First Professor in The Medical Faculty of Mc Gill University
from the painting now in The Faculty Room.*

THE MCGILL UNIVERSITY MAGAZINE.

We have to thank our contributors and critics for the favourable impression that the first number of The McGill University Magazine has made. It was only reasonable in the editorial board to expect hearty support from the University, and although the interest which the various Faculties have shown in our undertaking is not proportionate to the numbers of their students, our anticipations have been fulfilled. What we stated in the last issue regarding the primary object of the magazine—that of intensifying the sense of academic unity—is borne in upon us as emphatically as ever, nor shall we rest content until the magazine is welcomed with equal heartiness by every great section of the University. To conclude from letters received from all parts of this continent and from the mother country, the attractiveness of our journal—provided that the standard of the first number can be maintained—will eventually win the good graces of those who seem for some reason or other indifferent to its existence. Expressing simply an editorial opinion, we may say that there will be no difficulty in reproducing from time to time the quality of the initial number if a portion of the literary strength of those who ought to support the magazine continues to be given to it. Although, indeed, it is not for us to speak of the merits of the second number, we believe that the critical reader will admit no falling off in quality or in variety.

What particularly encourages the editorial board is the appreciation of the public generally. The list of non-academic subscribers is

much longer than we anticipated, and points to the conclusion that the magazine is felt to be something more than a local publication with academic aims. The publisher's register has been growing steadily. That is reassuring, and all the more so when we reflect that The McGill University Magazine came into the world without any puffing or fuss—so quietly, in fact, that we have lately met McGill graduates residing in Montreal, who had never even heard of it. There is a divine harmony which governs the actions of men, and it would not be seemly for a journal to appear in the Province of Quebec otherwise than modestly. And not only did our environment inculcate meekness; there was also the diffidence of those who plunge into the unknown. As of men, so of magazines :

One to the world's wine, honey and corn,
 Another, like Colchester native, born
 To its vinegar, only, and pepper.

Of vinegar and pepper we have had only a faint sprinkling, for which we are not ungrateful, but for which, owing to occasional hieroglyphics, we are not altogether responsible.

A statement in our last editorial will, we find, bear expansion. We said there, briefly and in substance, that we should be glad to receive contributions from any quarter. From inquiries made by a correspondent or two, it is evident that sufficient prominence was not given to the fact. Let it be added, then, that while The McGill University Magazine may not lose the features that make it collegiate, a large portion of its space is allotted to any contributors who send appropriate articles. There is every reason for making our journal Canadian in the full sense of the word. As to the complete function of a university no two opinions will be found to agree, but this at least is obvious : that a university ought to watch the life of the community in which it is situated, and be ready to hear from the outside what may prove to be suggestive and often salutary words. Hence it is that we shall always be glad to receive articles on subjects of national interest from persons qualified to speak on affairs which the undergraduate necessarily views from afar, but which he will be compelled, as a citizen, to approach and deal with in later life. The greatest difficulty that an editor has, however, is to obtain good material of the imaginative order. If our familiar, to whom we introduced the reader in the last

number, could only tell us where we might depend on getting a supply of intellectual syllabub, we should feel confident and happy.

One of our graduates sends us a brief article—his second contribution—on “University M. P.’s in Canada.” Coming as it does from a well-known journalist who is evidently interested in the bearing of universities on the various problems of commercial and political life, it will, doubtless, call attention to a question which is fitfully touched on in the press. But to take up a matter which affects professors rather seriously, we should like to discover why they are asked to pay duty on books, recently published in French and English, which they import. Are there not justifiable grounds for making an exemption in their favour, and could it not be made without detriment to the various interests represented in the tariff? It may be said that a professor has a university library to fall back upon, to which books come free of duty. But the buying power of most university libraries is quite inadequate to meet the case. It must be admitted, we think, that no academic obligation binds a professor to purchase a single book; his university ought to supply him with what he needs, nor expect more of him than the means it affords enable him to supply. A professor in Arts is no more bound to fill his house with books than a professor in Science to turn his house into a laboratory. If he had the chance he would do so instinctively, and here again the thoughtful mind will discern the workings of a merciful Providence which, not forgetful of the comfortable ordering of households, keeps him poor. Fortunately, however, the promptings of his academic conscience cannot altogether be withstood, and accordingly he puts aside a little money from year to year, buys books, pays the duty, and always has the comforting reflection that academic libraries are of slight commercial value in the local market. He will be lucky if some of his treasures bring the price of the duty he has paid on them. If university professors in Canada were sufficiently numerous—which Heaven forbid—to defeat a government at the polls, they could easily gain the ear of Ministers. As things are, they might effect a great deal by concerted action in matters that touch themselves and the educational welfare of the country alike. We dismiss almost in stating it, the argument that exemption from duty would lead to dishonesty; a professor detected in playing the retail bookseller on the sly, would be dealt with accordingly.

When thinking more particularly of our own University library, we remember that generous friends have given extremely valuable donations to it and put it, comparatively small as it is, in possession of treasures not to be found in many larger collections. To speak of a department in which we were once directly interested, that of History, the acquisition of sets of Muratori, Pertz and the Byzantine historians, to say nothing of large collections of historical tracts, makes the beginning of historical research possible. But the remarks made by Principal Peterson, in an article in our last number, are eminently true. What he said of classics applies to other languages and literatures. Any one who wished to write a monograph of importance on a leading topic in the history of a language or on an author well-known to the general literary world, which should display in the one case the latest discoveries of philologists and in the other the most recent investigations of literary influences, would find himself seriously handicapped in any Canadian library. Before us lies a thesis on Cynewulf, who is, to use the common phrase, the greatest Anglo-Saxon poet. Our University library is barren of books on the subject, or nearly so. A selected *apparatus criticus* of from twenty to thirty monographs would enable the author to bring his work up to the level of present scholarship, and thus make it a new contribution to a subject about which much is being written, especially in Germany. A private library supplied him with about fifteen treatises and books on Cynewulf—some of them dutiable—and accordingly the subject of his choice could be attempted.

But it may be said that the tariff is intended to support the Canadian publisher, and that he ought to be supported—certainly, to the extent of his publishing original and desirable books. Paradoxical as it may seem, the present question is one in which he has little or no concern. That school-books and modern novels and “art-editions” of modern poets are printed by Canadian presses forms no justification for making a Canadian professor pay duty amounting to several dollars on, let us say, Dr. Murray’s *New English Dictionary* or Prof. Skeat’s elaborate edition of Chaucer—works indispensable to a teacher of the subjects they present. To pass to less bulky and costly works, the colonial publisher would soon find himself in the bankruptcy court if his livelihood depended on the sale of special “studies” in literature or of scientific investigations of an

advanced character. Indeed, as we reflect on the catalogues of publishing houses everywhere we are reminded of Bacon and Bungay—of Bacon and Bungay, and, let us add, the schools. If Bungay brings out an English Grammar, Bacon must follow suit; if Bacon comes into the field with a new Geography, Bungay immediately appears tripping close at his heels with a similar volume. Although the proceeding brings distraction to school-boards and school masters, and makes parents thrust their hands into their pockets once more, publishers, as men of business, are hardly to be blamed. In a thickly-peopled country like the United States or England, the decisive victory of an English Grammar over its competitors is worth striving for; it means so much to the publisher and author—to the author, we imagine, a competency or something like it. The difference between the victorious book and its worsted rivals may, it is true, be scarcely more than the difference between two peas. But the practical question is one of legitimate, even if unsettling, business.

As The McGill University Magazine will come into the hands of English readers who may be ignorant of the existence of the Canadian tariff on books, a brief glance at the more recent history of the tax is not out of place. The subject is interesting, and to an outsider a little mysterious in some things. Before the present party came into power a duty of six cents per pound weight was levied on the books with which we are concerned. That was regarded as sufficient to keep out of the Canadian market the endless publications such as railway time-tables, almanacs and cheap novels, which were being imported, more particularly from the United States. The chief argument against poundage ran to the effect that the poor man who necessarily had to buy cheap literature was being unfairly dealt with, because he might have to pay as much duty on his cheap book as his rich neighbour on a costly one. When the next election took place the Conservative government was defeated. On the hustings the Liberals declared their intention of lowering the tariff generally, but by degrees, so as to approach, without endangering invested capital, a condition of things which did not differ appreciably from free trade. The first draft of the new Liberal tariff showed the imposition of a duty of twenty per cent *ad valorem* on new books in French and English published abroad. Were it not for spoiling the appearance of the page, the sentence we have just written would stand out in capitals or italics;

it looks rather flat in "Roman." The practical incidence of the intention it expresses, is, however, emphatic enough. A professor who to supplement a university library, imported new books in the languages just mentioned to the value of five pounds, would have to pay six pounds before he could place them on his shelves. But somebody protested or felt ashamed and the projected tariff was lowered to one of ten per cent *ad valorem*, at which figure it now stands, subject, however, to the British Preferential Tariff of Canada, by which the abatement of one-third of the duty lowers the ten to six and two-thirds per cent in the case of books published in England. We refer, of course, to a special class of publications the character of which we have already indicated. But there are books and books, and accordingly we turn to the tariff as given in the Canadian Almanac for 1902. As we glance at it the classification reminds us for a moment of an ancient battle of the books, nor are we altogether surprised to find that it touches the humorous side of things more than once. A duty of twenty per cent *ad valorem* is imposed on "novels or works of fiction, or literature of a similar character, unbound or paper-bound, or in sheets." Next comes the section dealing with the books to which we have been referring—duty ten per cent. Then follow paragraphs relating to books that enter the country free of duty. The first begins with "books on the application of science to industries of all kinds," and ends—such is the humour of enactment—with "bibles, prayer-books, psalm and hymn-books, and religious tracts, and Sunday School lesson pictures." On the free list also stand "books embossed, for the blind," the issues of learned societies, books "used as text-books in the curriculum of any university, incorporated college or normal school, in Canada," and "books especially imported for the *bona fide* use" of any public library, "and not in any case the property of individuals." As the reader might like to know the value of the dutiable books imported from Great Britain and the United States, we give the figures for the years 1897-1900, inclusive:

From Great Britain.		From the United States.	
1897.	\$205,706	1897.	\$ 535,946
1898.	212,227	1898.	669,478
1899.	253,071	1899.	813,167
1900.	244,430	1900.	867,394

Now and then a boast of a perfect system of education is heard—perfect on paper, we imagine; men of the type of the Abbé Sieyès exist everywhere—and to the boast should, we think, be added “perfect through difficulties.”

It only remains to point out that the individuals concerned in this question of exemption are both few and well-known; in other words, that the area to be watched is limited and easily accessible. To say that we are arguing selfishly does not make injustice, justice. Selfish promptings would cause a man to refrain from importing books altogether, and to throw the burden of importation on institutions which, as we have already said, are incapable of meeting his demands. The discussion might, of course, be extended beyond the limits within which we have purposely kept it. Its gist is expressed in saying that a professor ought to be able to place on his shelves, free of duty, the major and minor works of reference, large and small, which are not published by any Canadian firm and which no Canadian publisher would for a moment dream of printing.

Had we space we should discuss at some length another question of greater academic moment—the recognition of the work of its leading universities by the Dominion generally and not simply by the Provinces in which they are situated. The subject is, we admit, one of rather complex character, but that is no reason for shirking it or for letting what is in many ways an unsatisfactory state of things continue. The legalized principle of provincialism in educational matters is in danger of becoming an immovable fetish, the adoration of which is hardly the sign of an enlightened people. One thing must be admitted by every fair-minded man—we mean that a graduate of any Canadian university whatever who succeeds in passing provincial tests, so long as they exist, should be allowed to practise or teach in such province on the same conditions as students trained there. Provincial tests imply, or should imply, an ample safeguard against weakness. In educational as in other matters, the healthy working of natural law results in the survival of the fittest, and at that goal the common sense of a united people should aim. Although we speak of ourselves as a federated nation there are many things in our midst that proclaim a lower stage. Still, we are not pressing the argument to its limit. At the same time the educational welfare of the country is a national thing that oversteps provincial boundaries, and until it is regarded as

such, the contiguity of a number of the most perfect educational systems in the world will not save us. We shall still be seeking for perfect results. The popular conscience seems to be awakening, however, and it is to be hoped that Dr. Roddick's Bill, The Canada Medical Act, 1902, will soon become law. As it marks a significant departure from the existing order of things, we give a portion of its text :

"The persons from time to time appointed or elected, or otherwise being, under the provisions of this Act, members of The Medical Council of Canada, are hereby constituted a corporation under the name of 'The Medical Council of Canada,' hereinafter called 'the Council.'

The purposes of the Council shall be to promote and effect—

(a.) the establishment of a qualification in medicine, such that the holders thereof shall be acceptable and empowered to practise in all the Provinces of Canada;

(b.) the establishment of a register for Canada of medical practitioners and students, and the publication and revision from time to time of such register;

(c.) the determination and fixing of the qualifications and conditions necessary for registration, including the courses of study to be pursued, the examinations to be undergone, and generally the requisites for registration ;

(d.) the establishment and maintenance of a board of examiners for the examination of such persons and for the granting of certificates of qualification."

We imagine that the provincial note will be heard from disputants who appeal to the British North America Act. But constitutional measures are not made for eternity ; they have to bow to circumstances. What is constitutional may be inexpedient, unfair and not by any means compatible with the growth of the country. Conservative as law is, the constitutional historian soon becomes familiar with the legislation of reforms that sometimes establish measures infinitely more drastic than those which Dr. Roddick's Bill contemplates. To proclaim the sanctity of the British North America Act is no argument, in the true sense of the word ; it is simply another retreat to the refuge of past legislation, to which those who look on any change as mischievous, are always prone to flee.

To the practice of medicine, then, our argument applies with more force, perhaps, than to anything else. The welfare of the country is,

we repeat, to be thought of before the prejudice of local sentiment which cannot be brought to recognize that the unfettered play of the best medical knowledge, wheresoever found, is a thing on which a country should insist; nor ought it to be difficult to invent some method of determining the highest efficiency in candidates. To turn elsewhere, a significant movement is taking place among the engineers of Canada, who naturally enough wish to see only properly qualified men in their profession. Whether or not any one class of engineers can be entrusted with the administration of regulations that apply to all, is a question which must be left to those immediately concerned. In the discussions which are being held we notice with pleasure advocates of ultimate professional recognition as wide as the Dominion itself. With regard to the recognition of Degrees in Arts we are coming into the possession of some rather unexpected facts which must be discussed in another editorial.

The reader will find in the present number an address by Dr. Parkin on Imperial Federation. The Undergraduates' Literary Society of McGill University did well to ask him to lecture on a subject which he can present with so much force. In our opinion there is no question of greater moment to the younger generation than that of British Imperialism, and it is the duty of every thoughtful young man to make himself acquainted with its bearings on that part of the Empire in which he lives. Whether he agrees with Dr. Parkin or not, is really a secondary matter, provided that he knows the great outlines which the problem presents and can support the opinion he holds by arguments based on well-digested reading and thought. How the scale will decisively turn is not so clear, but it cannot remain long in equipoise. Something has to be done—gently it may be, and without offence it must be—something or—nothing, and so letting the vision which Burke saw pass into the unattainable. The McGill University Magazine is, we need hardly add, politically colourless, and its pages are equally open to Little Englanders and Imperialists. If we are asked personally, "Under which king, Bezonian? speak or die!" we answer in the mode of Shallow, "Under King Imperialism," and without the faintest hesitation. Before leaving the subject we may remark that we are not unduly impressed with the melancholy which is very much in evidence in certain places. The wail of the present day pessimist is quite feeble compared with that of his ancestor in the times of

Henry VIII. and Elizabeth ; indeed we cannot remember a period in which England has not been declared lost beyond recovery, by some one or other. Conditions are changed, so we are told for the five-hundredth time in as many years, and we admit it; change they must, yet not in one particular. The pessimist we always have with us. If the contracting parties wish, in unselfishness, to have an empire vitally connected by the political representation of its democracies, they can establish one. The wit of man has not been baffled by harder things.

We turn from such large issues to the University, which, as the contents of the Magazine show, has been playing its part bravely in the struggle in which the Empire is still engaged. What new signs of academic progress will be visible before we begin our new volume at the close of the year? If the incubus who has been troubling us lately had but the gift of prophecy, we might be able to stimulate those who desire to see a livelier growth of the university spirit. From the remarks he made in the last number, it is clear that he possesses a fair amount of knowledge and shrewdness. But prophecy is his weak point—"the twilight of dubiety never falls upon him." We did, indeed, ask him once about the realization of some of the desires of the University, and he replied that such things lay in the laps of the gods, a sentiment with which he seemed immensely pleased, and which he had apparently just caught when wandering through college halls. Still, we hope that the day is not very far off when the undergraduates will have some convenient place in which they can meet and get to know one another. An attractive and commodious gymnasium would effect much—a hall of residence with a superfluously large dining room, more. For some reason or other, societies which might be thought to appeal equally to all Faculties, take their colour from one or two. Over against them stand societies definitely connected with the special work of the professional Faculties, and these tend to lessen the interest with which students whose time and energies are largely absorbed in technical studies, regard associations of a general character. Certain prejudices and misconceptions necessarily exist in every large community, and the only way to dispel them is intercourse. But to bring about social life among students drawn from various parts of the country constitutes a problem not easily solved. Professors, even if they are able to entertain, can do so only fitfully and within a limited range, and, generally speaking they have neither the means nor the con-

veniences for doing so. The day is not very far distant, we hope, when some institution will be established in which the students of every Faculty can meet and enjoy easy intercourse without any separating elements of classification.

The editorial board has decided that a chronological series of portraits would make the Magazine more attractive to the academic constituency of the University than one which presents in irregular and, as some might think, invidious order, those whose names occur at once when the development of the University is considered. Accordingly we give the portrait of Dr. William Robertson, the first Professor of the Faculty of Medicine, as the frontispiece of this number. A short article, to be found elsewhere, gives an account of Dr. Robertson's career. Could he visit McGill now he would find that the seeds he sowed have brought forth abundantly, and he would view with pride the buildings and equipment of a Faculty which is, we believe, regarded as distinctly the strongest in Canada and one of the strongest on this continent.

One matter remains to be spoken of before we close our editorial. From time to time we have received requests from the editors of various magazines for copies of The McGill University Magazine in exchange. Could we afford to do it, there is nothing we should like better than to seize every chance of reciprocity, but the cost of publishing The McGill University Magazine renders it impossible for us to set aside an appreciable number of every issue for gratuitous distribution. Our action in this matter will, we trust, not be regarded as discourteous, but, rather, as determined by conditions which we have to observe if the magazine is to rest on a sound financial basis. Thanks to the support we have received from advertisers, we close the first year of its publication in solvency. Whether or not it is possible to make The McGill University Magazine a quarterly, will depend on the financial and literary help we receive.

DR. WILLIAM ROBERTSON.

The name of Dr. William Robertson, whose portrait appears in this number of the magazine, will always occupy a prominent place among those associated with the early history of McGill University, and of that grand old charity, the Montreal General Hospital.

Dr. Robertson was the Nestor of that famous quartette of physicians, Robertson, Caldwell, Stevenson and Holmes, who formed the first medical staff of the Montreal General Hospital, who established the Montreal Medical Institution, and who were later the chief members of the Faculty of Medicine, when that Faculty was the only teaching body in the University.

William Robertson was the second son of James Robertson, Esq., of Kindrochet, Perthshire, Scotland, who belonged to one of the oldest families in the Highlands, their small estate having been in the family for eleven generations. He was born in 1784, and led the life of a Highland lad, receiving his early education in the country school. At the age of thirteen he was an ensign in the Perthshire Highlanders, and with his cousin, Robertson of Jude, was in 1798 stationed in Galway; he was in action during the Irish Rebellion. He afterwards studied medicine in Edinburgh, graduating before he was of age, and soon after obtaining his degree, took the position of ship surgeon for a voyage to New York and New Orleans, where he made a study of yellow fever. On his return he was appointed Assistant Surgeon to the 49th. Regiment, then stationed in Canada. On the way out in 1806 the ship was wrecked off the coast of Nova Scotia, and William Robertson was taken care of by William Campbell, afterwards Sir William Campbell,

Chief Justice of Ontario. He fell a victim to the charms of Elizabeth Amelia Campbell, the second daughter. In six weeks they were married, the bride being sixteen and the groom twenty-two; they had twelve children, nine of whom grew up—four sons and five daughters.

Dr. Robertson, after settling in Canada, was promoted to the post of Surgeon in the 41st. Regiment, and from 1806 to 1814 he followed the regiment, living in Brockville, Prescott and York. He served during the war of 1812 and was in action at the battle of Queenston Heights. In 1815 he retired on half pay, and began to practise his profession in Montreal. At first, practice came slowly, but in a few years he became recognized as one of the leading physicians of the city. We find his name among the seven citizens who were appointed by the city to take charge of the construction of the Montreal General Hospital in 1821, and for fifteen years he remained one of its principal physicians. We next find him at the meeting held in the Montreal General Hospital in October, 1822, appointed one of the four who founded the Montreal Medical Institution, which, in 1829, became the Faculty of Medicine of McGill University. Dr. Robertson was then appointed Professor of Midwifery and Diseases of Children, and official head of the Faculty. He was the only member of the Faculty with the title of Professor. He was therefore not only the first professor appointed in the Faculty of Medicine, but was the first professor in the University who gave lectures and conducted systematic teaching. The Faculty of Medicine and the University as a whole owe much to the sagacity and energy of this able teacher. Dr. Robertson led a strenuous life. Although his practice was the largest in the city, he was an example to his colleagues both in the hospital wards and in the college, of thoroughness and punctuality in his arduous duties.

In 1842 his untiring devotion to his profession began to undermine his health, and he visited his native land in the hope of obtaining relief. He remained an invalid for two years, and died at the age of sixty, on July 18th., 1844.

Dr. Robertson was an able administrator, a solid, reflective and pain-taking teacher, an enthusiast in his profession, and in private life enjoyed the esteem of every one who knew him; his generous and charitable character made him universally beloved.

R. F. RUTTAN.

IMPERIAL FEDERATION.

*(An Address to the Undergraduates' Literary Society of McGill University,
delivered on February 28th., 1902.)*

I consider it a privilege as well as an honour to have been asked to discuss with you to-night the problems of our British Empire. No greater political question could possibly engage your attention as young Canadians ; no subject could give a keener stimulus to a speaker to try his best to furnish the young men of a great university like this with food for thought. Twenty-five years ago, or even ten years ago, a discussion such as we are to have to-night, on the question of Imperial Unity, might have been considered academic. Now all that has been changed. We are to speak of things present and practical ; matters with which our statesmen are dealing to-day, or with which they will have to deal to-morrow ; with issues vital to the country in which we live, to our nation and to mankind.

We are living in one of the great transition periods of the world. As the new century opens upon us we hear, as seldom before, and never on so large a scale, the throbbings of change and evolution among the nations. Old systems are dying out, old combinations crumbling away ; new national horizons open to our view. The United States comes forward to take a new place among the great world powers—Russia stretches her mighty limbs in fresh struggles to reach the sea and the sun—Japan, by a development unmatched in history, has achieved full recognition among the western nations, and proudly takes a position beside our own people in the guardianship of the East—Germany, restless and ambitious, seeks wider space for the full play

of new-born energies. Above all, our own Empire, with its vast interests on all the continents, is in the throes of a new birth.

As she emerges from a great struggle which has at once tested her powers, developed points of weakness, revealed new sources of strength, and demonstrated the imperative need of efficiency in peace and war, her vision has been cleared in at least one essential particular. She has learned the value of organization. The problems which confront us are those of organization, and as we face them the eyes of the world are upon us. Never were the position and the prospects of the Empire so closely watched by foreign nations as they are to-day. We, the children of the house, may well give them our deepest thought and closest attention.

And first let me say that what Canadians think on this great question of the Empire's future has become a matter of the utmost consequence. The circumstances of our history have thrown upon us a great responsibility of decision. Canada is the premier colony of the Empire. It has reached the most advanced state of political organization of any of the colonial systems. In 1867 it set the example of confederating under the Crown, and therefore remaining as a part of the Empire. It did this in the face of much contrary expectation among British statesmen. There is no doubt that our action at that time fixed the tendency of other great groups of colonies in the same direction. That was a great step, but not a final one. It still remains to be decided whether we shall throw in our lot entirely and unreservedly with the British Empire as represented and responsible citizens. It is for us to say.

Not long since, Mr. Chamberlain, on a great public occasion, speaking to colonists of the further consolidation of the Empire, said that the English people were ready to follow in the direction of closer unity as far as the colonies were ready to go. This great challenge compels us to consider what our policy as a people is to be.

I think you will agree with me that two great guiding principles lie at the basis of our Anglo-Saxon ideas of citizenship—its rights and its responsibilities :

1st., That what concerns all should be managed by all.

2nd., That what benefits all should be paid for by all.

This means that the stamp of complete citizenship is only given when there is a voice in the management of common affairs, and that the bearing of common burdens alone can give this full right of repre-

sentation. We may be absolutely sure that this is the goal of citizenship towards which the instincts of our race will compel us Canadians to move. These were the instincts which inspired the great movement for responsible government sixty years ago. The application of that great right has hitherto satisfied our sense of citizenship, but it was only a stage in our political development. We must rise to political manhood. So far as I can see, there are only two possible lines which Canadians can follow in seeking this political manhood. I rule out from the first the question of annexation to the United States. Against this the whole history of our country is a protest. It was resisted in 1776 by force of arms, and by both the races of Canada; it was resisted in 1812-14 on many hard-fought fields, and with much expenditure of Canadian blood and treasure; it has been steadily resisted through long periods of commercial depression, when annexation would, apparently, have brought boundless prosperity. It is put out of the question to-day by many considerations; by the passionate national sentiment engendered during one hundred and twenty-five years of independent history; by the feelings of our French population, whose most cherished privileges depend on British connection; by the faith which Canadians have in the superiority of their own system of government; by unwillingness to be involved in the problem of black and alien races with which our neighbours are burdened; by objection to share their enormous war and pension expenditure; by the desire to remain connected with the greatest national life and naval power known to history; by the enthusiasm which looks to working out a grand future for our own half of the Continent, and to taking a large part in the wider future of the Empire. There remain two ways in which we, as a people, can rise to that status of full citizenship which we do not now enjoy:

1st., By Canadian independence.

2nd., As part of a completely united British Empire.

Till we have reached one or the other of these alternative goals there is for us Canadians no political rest or finality.

When we ask ourselves whether complete independence is to be the end of Canada's political development, we have opened a field for grave speculation. Such a goal is a perfectly honourable one to seek; it was what the statesmen of the motherland long anticipated for us; it still appeals to some minds both in Canada and in the mother country as

our natural destiny. But is it practical or possible? Do the present condition of the world and the attitude of other nations favour small, struggling nationalities? I think that all thoughtful men in Canada to-day would agree that an entirely independent national life, with all its weighty responsibilities and its burdens for naval, military, consular and diplomatic expenses under modern conditions, would be more than the country could bear, and would give us an uncertain and anxious existence. They would probably also agree in the opinion that independence for Canada within the next twenty-five or fifty years could only lead to absorption into the United States.

Looking out upon the world with its present inclination to enormous national aggregations, eagerly pursuing their own interests, and sometimes unscrupulous in seeking their ends, it would seem that a state like ours, resting on two great oceans, with coaling and naval stations east and west such as the great growing powers especially crave, and marching upon a great world-power for four thousand miles of frontier, could scarcely expect immunity from danger. We should be compelled to hold our own with a strong right arm, or be content to live on sufferance. Our commerce, now reaching out to all oceans, would have to be protected, while we do not possess the bases abroad nor the ships at home which make adequate defence possible. In disputes, unless we could match man for man and gunboat for gunboat, we should be liable to pressure such as that we have lately seen applied to weak states like Turkey and Venezuela. I must confess that the prospect does not seem to me, as a Canadian, either pleasing or practicable. Nor does it seem to me necessary on our path towards the highest possible ideal of national development. We are already in a limited sense citizens of the greatest empire in the world, and sharers in the highest and fullest national life yet known among mankind. Is not our true destiny to complete and round off this citizenship rather than to seek a new one? This is the problem of what is called Imperial Federation, which means whether or not we and the other great colonies shall remain a part of the British Empire. This problem represents what we may call the new ideas about our Empire. They present for us a future so much greater, so much nobler and so much more on the lines which our best Canadian traditions have opened up, that I confess every other plan to my mind fades into insignificance when put beside it. I have tested the argument by which it is support-

ed not only throughout Canada, but in Australia, in New Zealand and in the motherland, and I must say that I have never yet found a quarter of the Empire where the arguments which support the continued unity of the Empire were not accepted by those who heard them as having irresistible weight. But a great process of education is still to be carried on. It is therefore of the greatest interest to me to address a body of young fellow-Canadians upon the subject, knowing how much influence they will have in moulding the opinion of this country.

Let me point out to you, first, that the question is one which cannot be shirked so long as our political nature remains what it is. There is one fundamental idea in our Anglo-Saxon minds on the matter of citizenship. It exists in the mind of every man before me. While other nations, like Russia or Turkey or Germany, may require to be ruled we believe that we can rule ourselves, and we insist on doing so. Let us consider what this means. In his parish or school district each man has among us a right to vote and to share in the control of public affairs. It is the same in a county or city municipality for a wider range of interest; it is the same in a province. We should not feel ourselves citizens in the full sense of the word, if we could not vote for the men who rule Ontario or Quebec—or, when we come to the wider area, the Dominion. We choose our representatives to share in the control of this vast country, and when we do this we also undertake a share of the public burdens. But why do we stop here? We are members of a nation in whose affairs we are profoundly interested—in matters of peace and war, diplomacy, postal and telegraph communication, consular service, a hundred other things common to the nation at large. When we leave the final control of all these matters to one section of our nation we abdicate our right of equal citizenship; we voluntarily take a position of inferiority. Meanwhile our commerce is protected by fleets for the support of which we contribute nothing; we enjoy the advantages of a great national service without paying for it; in a word, we let other people bear our expenses. That may do for the infancy of a people, not for its manhood. And we are becoming a nation with a nation's interests. On the Pacific as well as the Atlantic our commerce is spreading and bringing us into contact with other peoples. What is true of us is true of Australia and New Zealand in the Southern Seas. It is becoming true of South Africa. There is no political finality in such a state of affairs. Our position is absolutely

without parallel in the world. The colonies of the British Empire are the only civilized and commercial countries in the world which make no expenditure for diplomatic or consular service; although in every part of the world they enjoy the advantage of these services in their most highly organized form. Canada, up to the present time, and most of the other colonies till quite lately, have been absolutely free from the burden of naval expenditure, although their interests in all quarters of the globe have been protected by the most powerful navy in the world. Up to the present time the military expenditure of the British colonies has not been more than one-tenth of what is ordinarily paid by the citizens of the United States, England, France, Germany, Italy and practically all other modern nations. Such a state of things cannot continue. If anyone doubts this let him reflect upon the illustration furnished by the United States. Suppose our old colonies had remained in the same friendly relation to Great Britain that Canada and Australia are to-day, can we imagine them when their population had increased to fifty, sixty, or seventy millions, allowing their great national affairs to be managed by the people of the United Kingdom? On the other hand, we cannot imagine the United Kingdom being willing to bear the naval, military, consular and diplomatic expenses of this great and powerful community without asking them to take their share of the burdens. But we are rapidly approaching a similar condition of things. Canada has nearly six millions of people—Australia, four millions; within a comparatively limited time the colonists of the Empire abroad, occupying vast areas, and developing immense interests, will number as many people as are found at home. I think you will agree with me in view of these facts that our subject to-night is not academic but practical.

I wish, in the next place, to point out that the new views about the consolidation of the Empire, often referred to under the name of Imperial Federation, are of Colonial—not of English—origin. It was long the view of English statesmen that colonial growth could have only one end, and that was separation from the Empire. After the American Revolution, Turgot's saying that "colonies are like fruit—when ripe they naturally fall from the parent tree," passed into the currency of political thought, and was accepted as a truth, and gave direction to the views of statesmen. I myself possess a copy of a bill prepared under the direction of leading public men in England which

outlined the relation of the colonies to the mother country, and ended by making provision for the separation of such colonies as they grouped themselves together in large states. Even when we were on the point of becoming confederated here in Canada, a great organ of public opinion in England advised us to look to independence as our natural goal, and in doing so doubtless reflected common opinion. I dare say most of you remember the noble lines in which Tennyson rebuked this attitude towards Canada. The confederation period in Canada, then, really marked the turn of the tide in English opinion. But long before that the great national idea had taken deep root in our Canadian life.

Language is often concentrated history. We have a term which is familiar to the smallest school boy in Canada—"United Empire Loyalists." Its very initials, "U.E.L.," have woven themselves into Canadian history and Canadian speech. What does the term mean?

It means that in the disruption of the Anglo-Saxon race which took place in 1776, there was a large body of men, variously estimated at between fifty thousand and one hundred thousand souls, the founders of Ontario, Nova Scotia and New Brunswick, who thought no sacrifice too great, no effort too exacting, which would secure the continued unity of the British Empire. They believed that all the rights of government for which the American provinces were ready to revolt could be gained by political evolution within the Empire. In this faith they resolved to remain under the flag, sacrificed everything that they possessed, and came to Canada. History has justified them. The great colonies of the Empire, as well as the motherland, enjoy to-day a freedom of self-government as great as is known anywhere. They have a political system which gives freer play to the popular will than does that of the United States. The Loyalists of the Revolution are more than justified. But their work and influence are not yet complete. We trace to them the idea of a united Empire; it is our task to complete it. When we come down to a later time, here in Canada, we find that the great champion of responsible government in the Maritime Provinces, Joseph Howe, was perhaps the earliest Canadian advocate of the Imperial idea, as we now understand it. The responsible government for which he fought was the fundamental idea upon which the whole political system, not only of Canada, but of all the self-governing colonies of England, rests. If you will follow the speeches and writings of Joseph Howe you will see that it was the

study of the question of responsible government which led him directly towards the idea of a United Empire, and a common citizenship for all British subjects. When Mr. Howe first addressed himself to the subject it was the inertia of the British mind which seemed to him the greatest difficulty. Some of his papers upon the question were formally addressed to English statesmen, and pointed out to them how ready England ought to be to bring into her national system, fully and completely, the young nations which were growing up abroad. And what Joseph Howe felt in Nova Scotia, the men who worked for responsible government in Ontario felt as deeply. Indeed, any one who follows out the fundamental principle of responsible and representative government, can reach no other conclusion than that the great colonies must in the end choose definitely between independence and Imperial consolidation. When we come to face this alternative there can be little doubt in which direction we shall incline. Our course will be decided not merely by the political ideas which we hold, but by the great material interests which we have at stake. No one can understand our national problem unless he understands the changed conditions under which the nation now exists. We belong to the great trading race of the world. Our nation has been built up in the pursuit of trade and commerce; to give trade and commerce security it must be maintained. Let us consider the circumstances under which we hold that maritime supremacy upon which our vast trading interests rest.

This is an age of steam. The commerce of the world and the defence of that commerce are carried on mainly under steaming conditions. What these conditions are we know. At distances of one or two thousand miles it is necessary to have coaling stations where ships of commerce or of war can re-fill their bunkers. Follow along the great routes of English commerce and you see these stations. On the first great route to the East—Gibraltar, Malta, Suez, Aden, Bombay, Trincomalee, Singapore, Hong Kong; by the Cape route—Sierra Leone, St. Helena, Capetown, Mauritius; and, in the Southern Seas—Thursday Island, Melbourne, Sydney, Auckland, Lyttleton, Dunedin; westward across the Atlantic lie Halifax, Sydney, Bermuda, St. Lucia, and finally, upon the Pacific—Esquimalt and Vancouver. Not only have we coaling stations at these points, but in most cases there are graving docks, fitted to take in the largest ships. In many cases there are

most powerful fortifications defending these stations. All this has grown up as the natural outcome of our vast commercial system. No other nation in the world has an equipment like this for prosecuting and protecting trade. It is like a coat of mail thrown round the world to guard our industries. The national flag flying over these points gives us the right in time of war, as well as of peace, to enter these ports. Remove that national flag, and under the laws of neutrality, in time of war, that right ceases to have force. Independence would make us neutrals.

But it is not in coaling stations alone that we discover the enormous potential power of a united British Empire. Follow me a moment on the map while I point out to you the extraordinary position which our nation occupies in regard to the command of coal. You know what an abundance of coal has meant to England. It has been at the foundation of her industry; it has made her the workshop of the world; it has enabled her to utilize the power of steam both for internal industry and external commerce beyond any other country in the world. But the coal of England is only a small part of the immense supplies which the Empire has at the points where they are most needed. Across the Atlantic, where Canada stretches out farthest towards Europe, we have immense deposits of good steaming coal in Cape Breton and Nova Scotia. If we cross to the Pacific, where Canada stretches out farthest towards Asia, the only great deposits of good steaming coal on the Pacific coast of America are on the Island of Vancouver. Crossing to the Southern Hemisphere, we find in New Zealand, in Tasmania, and in New South Wales, almost unlimited supplies of excellent coal. Again, in South Africa, the mines of Natal have become of importance, and furnish coal to our navy. The coal of India is abundant though not of the highest quality; that of Labuan, in Borneo, is excellent. If you compare this command of coal supply with that possessed by any other nation in the world you will understand the immense advantage which it gives us over all our competitors in an age of steam. It would appear that over a large part of the world's surface we could paralyze opposing navies merely by denying to them access to coal. Our newly-made treaty with Japan, which also has abundance of coal, appears to complete our hold on the Pacific in this important particular.

In what I have mentioned lies the secret of our maritime superiority.

But for a race of workers and traders such as we are, the command of the sea is a supreme necessity. The Australian who raises wool to sell, the New Zealander who sends his mutton to Europe, the Canadian who aims at flooding the North Atlantic with ships carrying the produce of his farms and forests and mines, are as much concerned in the security of the sea routes as is the working man at home whose daily sustenance and daily wage depend on safe access to the far distant sources which supply him with food and the raw material for manufacture. It is estimated that every year British commerce to the extent of two thousand millions sterling is afloat upon the open sea. Upon its safety depends the industrial welfare of at least four hundred millions of our fellow subjects. A common flag and the united strength of motherland and colonies must be our reliance in giving it this safety.

The colonies are necessary to the Empire; the Empire is no less necessary to the colonies. A foothold upon every continent is essential to a great maritime nation; colonies scattered over every continent require behind them a great maritime power. The wisdom of our politics will lie in making their interest coincident and their force united.

The lines of possible common interest are manifold, and deserve the most careful study on your part. Take the single question of preferential trade within the Empire. At present Great Britain buys from all the world alike, without any advantage given to her own people in various parts of the world. While she grants freedom of trade to the United States, to Germany, and all other countries, she allows them to build up against her, tariff barriers which exclude her from the great markets of the world. To any one who surveys the vast extent of our Empire, and who sees the immense possibilities which it offers of ministering to every want, it certainly seems possible to strengthen greatly our national position by taking the same methods which have proved so successful with other nations in building up our industrial system. At any rate it is fairly open to consideration. A system of preferential trade would almost certainly turn the great tide of British emigration which for the last century has floated mainly in other directions, towards the countries under our own flag, where it would be building up our own national strength. And those who study the question of food supply and reflect upon the extremely delicate and complicated

conditions under which the working masses of the United Kingdom are fed, are fixed in the belief that national security would be greater if a sufficient food supply could be relied upon within the bounds of the Empire itself. This is one of the great political questions just now coming up on the horizon, and it deserves your close attention.

Once more, there is the great problem of national defence. With our wide-spread territories and our prodigious commerce no other people in human history ever offered such a prize to the cupidity of hostile nations. That we do stand confronted with hostile nations the history of the past few years has amply proved. Our safety must lie in consolidated strength. To secure this consolidation is the problem which lies immediately before us. The great outburst of national enthusiasm which swept over our Empire at the outbreak of the South African war will have lost its best result if it leaves us in the same unprepared and unorganized state as a nation that we were when this great test came upon us. We Canadians must gradually learn to take our full share of the burdens of national life. There are those who believe that a scheme of Imperial defence might be so combined with the system of commercial advantage that while we assume burdens we gain financial strength. I can only suggest this great and complicated idea to you. You will hear much of it in the coming months and years.

There is another side of the question to which I wish specially to direct your attention. Speaking here in the Province of Quebec and in the city of Montreal, I feel bound to refer to the relation of our French-speaking fellow-subjects to this great question of national unity. To know what it is likely to be in the future, it seems best to recall what it has been in the past. The treaty of 1763 secured for French Canada rights and privileges fuller than have perhaps ever been granted to the losers in any great military conflict. The guarantees of that treaty have been faithfully kept by the Empire. Of this our French citizens have shown every appreciation; they have steadily stood by the Empire which has given them a greater freedom of government than they had ever known before; as great as any country in the world enjoys. In 1775 they joined in resisting American invasion, and in fighting for the integrity of the Empire. In the war of 1812-14 they again stood in the very front of the fight, and the remembrance of Chateauguay is to-day an inspiration to every Canadian, French or English. In 1867 the

statesmen of French Canada joined with those of the English provinces in working out the confederation of the Dominion. They joined in making the critical decision that this confederation should take place under the Crown—that is, as a part of the British Empire. The manifold results of that decision you all know, but there was one upon which emphasis might well be laid here. In 1897, thirty years after Confederation was accomplished, a French-Canadian premier of the Dominion went to the great jubilee gathering in London. He went as the trusted representative of English Canada, as well as of French Canada, and as the eloquent exponent of strong and sound Imperial ideas. He was deservedly one of the most prominent figures in that great national pageant. I said then, and I repeat now, that no battle that Britain ever won, by land or sea, represented a greater national triumph than the fact of Sir Wilfrid Laurier's presence at the Jubilee in 1897 as the Premier of this great Dominion and the representative of its joint nationalities. It showed that the free institutions enjoyed under the British flag gave an equal opportunity to men of every race and creed; it proved that the differences fought out in 1759 had been lost sight of in the common citizenship of this great country, and our greater Empire. It proved the assimilating power of a political system which, from the circumstances of our vast national expansion, is compelled to adapt itself to many people and varying conditions. Now, if you let your mind thus run back through the one hundred and forty-three years which have elapsed since Quebec came under the British flag, have you any reason to doubt that the instincts and interests of our French fellow-citizens will hold them in the same attitude to the Empire that they have maintained through that long period of time? If it becomes clear that the further consolidation of the national system is as essential to the welfare of the nation as Confederation was to the welfare of Canada, Quebec will, I am convinced, fall in as cheerfully with the wider process of national evolution as she did with the less. She cannot isolate herself from Britain any more than she can from Canada. If it be true that under existing conditions Canada cannot retain her independent position apart from the Empire, much more true is it that Quebec cannot on this continent retain what she values most, save under the flag of the great nation which has formally guaranteed her peculiar position.

If the fear that he may be taken away to foreign wars is sometimes

held up to the French-Canadian as an argument against Imperialism, let him remember that the British flag is the one flag in the world under which so far no man has been asked to fight unless he himself choose to do so. The French-Canadian officers who have won so much distinction in South Africa are there by their own choice and by that alone.

We have no right to ask from French-Canadians the same enthusiasm for the expansion of British influence which is felt by men of Anglo-Saxon race, but we need feel no hesitation in expecting from them the same loyalty to the nation's development which they have shown in the past. No people within the Empire have gained more from connection with it than they have; none have enjoyed under it a fuller liberty; none have had their rights more scrupulously regarded. The lapse of time only brings into stronger relief the truth of Montalembert's remark that the Frenchmen of Canada had gained under British rule a freedom which the Frenchmen of France never knew. Do not be discouraged when you are told that to work out a scheme of Imperial Federation is something of which we are not politically capable—that local interests are too powerful—that the centrifugal forces will prevail. The same thing was said in the United States, in what one of their own writers has called the critical stage of American history. There were those in Canada who keenly opposed the confederation of our Dominion. Australia has worked its way towards the federal system against tremendous resistance from provincial prejudice and isolation. Both in the case of the Dominion and of the Commonwealth there were men who took the provincial view, and who affirmed that rights were being given up when the separate colonies joined in a federated state. But few now doubt that this was the narrow view, and that in union we have advanced to a higher stage of national life. A united Italy, a united Germany, the maintenance of the American union—these have been the dreams of the modern world for which statesmen have toiled, and millions of lives have been sacrificed. Is not the dream of a united British Empire grander and nobler than even any of these? **May** we not look upon its accomplishment as presenting to us a cause which Lord Rosebery was justified in describing as one not merely worth living for, but, if need be, worth dying for?

We are approaching a critical period of this great question. In June next there is to be held a conference of the Premiers of the great colo-

nies of the Empire. They are being asked to London not merely to witness the coronation of our Sovereign, but for the purpose of discussing questions of trade, national defence and such other matters of common interest as may come up for consideration. The attitude which the representative of this Dominion takes at that great conference is a matter of supreme interest to the people of this country—of supreme moment to the future of the Empire. The voice of the country should make itself distinctly heard in regard to the part which Canada wishes him to take in that conference. Do we desire to move steadily and strenuously towards the goal of a United Empire, or shall our influence be thrown in a different direction? Herein lies probably the greatest political question of the hour for Canada. I ask you to watch it with attentive interest, for it is a question which may fundamentally affect the whole future of the Canadian people, and even the future of the Empire.

G. R. PARKIN.

THE MAMMOTH CAVE AT NIGHT.

(To R. H. M.)

Our passing lights long shadows cast,
The trees like phantom dancers whirled,
The night winds followed till we passed
The portal of the Under-World.

Our idle chatter faltering died,
The wonder in us found no tongue
Before the works God's tireless tide
Had fashioned when the earth was young.

Long ere the Spaniard touched this shore,
Ere wandering Briton found a home,
Ere Norseman clove the forest hoar,
Or ever mortal dreamed of Rome;

Ere Greece to greet her glory sprang,
Ere Egypt raised her piles austere,
While yet the stars of morning sang,
God wrought in awful silence here.

We knew our world;—but knew not this;—
A world of never-ending night,
Of horror crouched in deep abyss
Or sleepless in the towering height;

Of silence, or mysterious sound
Of unseen waters' ceaseless fall
To lower depths far underground,
Of darkness brooding over all.

As in a dream we saw and heard :—
We gained the upper earth and stood
Amazéd—till a waking bird
Called clearly through the sleeping wood.

WILLIAM McLENNAN.

COMMERCIAL EDUCATION.

There are few subjects in which more widespread interest has been manifested in recent years than that which is generally understood to be covered by the title of this article. By this I do not mean that this question has overshadowed all others in any or all of the chief nations of the world, but that its importance has been recognized in increasing degree in most of the important commercial nations. They are all evincing great concern in an educational question, and in the same educational question, and it must be admitted to be a remarkable fact that such should be the case. The development of national industries to a point where the domestic market fails to afford an adequate outlet for the industrial product, and the consequent efforts to develop foreign trade, are important reasons why special attention is being directed to the qualities making for success in such international competition for markets. But the growth of foreign trade is not the only reason why the securing of commercial efficiency is felt to be of increasing importance. That movement towards industrial specialization, of which the production of certain important commodities in excess of the needs of the home market is one indication, has for generations been developing in every department of production. The influence of those in whose hands is the organization of the interchange of the products of the different branches of industry, is extending its range and increasing its power. The commercial section of the community have more control over our welfare now than ever before, and they are likely to possess an even more complete power of control in the future than they have in the present. If the evidence of the general trend of movements of

which we are all cognizant is not sufficiently convincing, we have merely to turn to the census returns of any civilized country for the past twenty years or so to find expressed in arithmetical form the growing importance of commerce in the life of the several nations.¹ It is, indeed, not to be wondered at that serious concern is manifested in regard to the future efficiency of the mercantile organization, and to the maintenance of that efficiency at a level corresponding with the increasing demands that will accompany economic evolution along the present lines. The conduct of trade and commerce in the future is likely to require an ability greater than has sufficed to secure success in the past. Reference is made in a recent report of a Swedish Royal Commission² to a view, frequently expressed, that those who had failed in other walks of life might seek refuge in trade. Unjust as this may be, if it is intended to imply that success in trade may be achieved by any kind of incompetent, the belief is not entirely confined to Sweden, or it would not be worth while referring to it.

How can we best meet the difficulties which I have just tried to suggest? Can our schools and colleges afford the kind of help which is required? Are schools of a special type required, devoting attention exclusively, or almost exclusively, to those departments of instruction which have the most direct bearing on commercial affairs? These are some of the questions asked in connection with the problem, or forced upon our attention by reflection upon its details. In particular the question arises whether the school or the office is the best place in which to conduct the training of the aspirant to mercantile distinction, or in what way the training should be divided between school and office. Whatever grade of work is in view, the opinion expressed by a distinguished Austrian writer in a recent volume³ incidentally touching on

¹ In Canada, commerce engaged one in fourteen of the population twenty years ago, but one in nine were so engaged ten years ago. In the United States those engaged in Trade and Transport increased by 78 per cent. between 1880 and 1890, while the general growth of population fell short of 31 per cent. The German censuses of occupations in 1882 and 1895 show a similar tendency to the increase of the relative importance of commercial occupations.

² *Handels och Sjöfartskomitén*. vii. *Utrikes Handelns Främjande* § 4. *Handelsundervisningen*, p. 98. Stockholm, 1901.

³ *System der Handelspolitik*, von Dr. Josef Grunzel. Erster Teil § vii. *Das Kaufmännische Bildungswesen*, pp. 274-5. Leipzig, 1901.

this subject, is to the point. He contrasts the requirements of industrial (or agricultural) technical training and of commercial training in a very marked way. The former must give preponderance to special technical matters connected with the industry for which preparation is being made. The latter, on the other hand, requires far more of general knowledge, and a trained intelligence capable of grasping varied conditions and of weighing their respective influences. "Experience and routine," writes Dr. Grunzel, "are here"—that is, in commerce—"also of invaluable assistance, but if they do not rest on a comprehensive general education, they lead easily in the direction of superficiality and, with it, to ceaseless speculation, which has ruined many a talented merchant."

It is of the first importance to keep this idea in mind in every case where a scheme of commercial training is in question. Its application, moreover, may go far to solve one of the most serious difficulties of the problem, constituted by the practical impossibility of giving efficient instruction as to details of office work outside of the office itself. If it be true that these details are by no means of the same relative degree of importance as in the corresponding case of the technical training of an artisan, the effort to secure their being imparted in the school will be less imperative. The school will not fail to perform the functions of a commercial school, affording admirable and useful preparation for commercial life, because it does not turn out its pupils with a complete and detailed knowledge of office routine. On the other hand, it will not have fulfilled its purpose unless its pupils are better prepared for acquiring the information which will readily come to them in their actual mercantile life than they would have been without undergoing the training of the commercial school.

This consideration, that the purpose of a special commercial training is not to turn out pupils already equipped with full detailed knowledge relating to their subsequent duties, imposes a limit on the time that can be devoted to such school work, and, for that reason, also to the extent of ground which the school course can cover. Perhaps the greatest difficulty felt by practical men in connection with commercial education is to make any plans for school or college work to that end fit in with the necessity of getting hold of their young men while they still possess sufficient adaptability to fit readily into the places assigned them. After a certain age, which it is not essential to specify with

precision, and which may vary not a little with the individual, the average youth loses that mental and bodily elasticity which enables him to adapt himself easily to new conditions and quickly pick up the lessons of experience necessary to make him useful in any commercial employment. If he is to learn thoroughly, and from the very foundation, the work of the business in which he is engaged, he must not approach it too late. Hence, any preliminary training must be compressed into the years left available by such considerations.

The kind and extent of work which is possible will, naturally, vary greatly, according to the degree of importance and the responsibility which belong to the position attained in after life. The lower grades of clerks,⁴ copyists, typewriters and shorthand writers and the like, whose work is in no small degree mechanical, do not need the same training as those engaged in more responsible work. They must possess accuracy and patience among other qualities, if they are to do their work well, and these qualities are not the special product of technical training. For the development of general intelligence, the broader lines of a general education are at least as effective as any special courses, provided that equal ability is devoted to devising and carrying out the educational plan. If any special preparatory work is required of this section of the commercial class, it is hardly possible to conceive of narrowing the general education to make room for special subjects. If the school is to prepare for business in these cases, opportunity must be furnished by an extension of the time assigned to school life. Where that is impossible, the deficiency can be made good by providing facilities for evening work in such subjects as shorthand, typewriting and bookkeeping. It is to be observed that the profitableness, to employer and employed alike, of such opportunities, is capable of being reduced to a very low level if the individuals who make use of them are unfitted, by the excessive fatigue of a long working day, for assimilating new ideas in the evening hours.

Turning from the section whose educational needs are essentially primary, both in regard to general and technical education, we have to consider the case of the main body of the more responsible employees—the superior clerks, correspondence clerks, travellers, agents, manag-

⁴ See *Report on Commercial Education to the London County Council*, 1899, especially pp. iii., iv., on the needs of the different sections.

ers of departments. It might almost be said that the needs of this section are as various as the departments of business with which they may be connected, and this very fact constitutes one of the most serious difficulties in the way of providing educational facilities which may be of practical value. The principle to which attention has already been markedly directed, that thoroughness of general education is a necessary preliminary to effective technical training, proves helpful here. The time usually available for school life is commonly longer with these than with the grade of employees previously considered. Hence the ordinary school-work can be carried further. Clearness of thought and the power of giving it written expression can be cultivated, and, with wider knowledge, a greater breadth of view may be attained. Some acquaintance with one or more modern languages may be acquired, both as a means of mental training and with a view to its utility for business purposes. The best point at which to break off school life and begin the practical training of the office is matter of question, and will, no doubt, depend not a little on the efficiency of the schools to effect their purpose in providing for real, intelligent mental development. Even if pupils can remain at school till the age of eighteen, before beginning work in an office or elsewhere, it would probably be inadvisable to permit complete specialization on what are known as commercial subjects at any time, unless their previous general education has been exceptionally thorough. Some part of the pupil's energy may profitably be devoted to the acquisition of special facility in calculations, to bookkeeping, etc., and such subjects as geography, and the broad outlines of economic principles combined with important facts relating to industrial organization, could be used both as a means of intellectual training and of acquiring useful information. For most of the members of this section of employees, as with those of the former, the deeper general knowledge and much of the technical knowledge required to advance them in their business, must be sought after business hours. Evening classes suitable for young people of this class can probably contribute as effectively to equip our young men for the work before them as any other institution under our existing conditions. The actual experience of daily life providing knowledge of technical matters from their practical side, their purposes and the inter-relations of business operations can be more adequately appreciated, and the help of the teacher can therefore be more effective.

Were it feasible to combine the actual work of the office with that of the class-room without trespassing on the evening hours, this association would obviate the necessity of going as far as some commercial schools have done, namely of making the school-work include practical office-routine. This is done by means of commercial bureaus, where the work of a business office is imitated, for the purpose of accustoming the students to the practical side of their prospective careers. With such bureaus we find associated commercial museums, in which the student may become familiarized with commercial products through examination of the samples placed thus at his disposal.

The highest class of the commercial world remains for consideration, namely the employers in industry and commerce, the heads of business houses. In regard to these, and to those immediately associated with them in their work, the greatest differences of opinion as to what the province of education in regard to them is, has prevailed. The "Railway Age," in a recent issue,⁵ says:—"It is indisputable that the real leaders of modern civilization are the captains of commerce and industry. To manage successfully a great business, demands to-day the keenest intellectual faculties, developed to their utmost"; and asks the question, "If professional men can be better fitted for their life-work through scholastic training, why cannot business men be so trained?"

The answer turns, in large degree, on whether the time can be spared to devote to such a training. The lawyer, doctor or clergyman is, in and by his college training, fitted in very large degree for the actual practice of his profession. Can anything of a similar character be done for aspirants to leadership in business? It is hardly necessary to urge the examples which have been often cited, as that of the old-time doctor's apprentice, whose induction into the profession consisted in performing the duties of stable-boy. Experience is, indeed, invaluable, but it is not absolutely necessary that everyone should spend the best years of his life in learning through his own mistakes to avoid what he might easily have learned was certain to result disastrously. This knowledge would be cheaply purchased if a preliminary training of two or three years at the outset enabled half a dozen years of actual business to afford as adequate a knowledge of business principles as could have been acquired in a score of years without the aid of preliminary training.

⁵ *The Railway Age*. Chicago. January 17, 1902, pp. 66-72.

There are, indeed, many things which we can only learn through making our own blunders, but the crystallized experience of others, represented in theoretic examination of fundamental principles, may avail to save us from some errors and their painful consequences. The relative advantages of practical knowledge and more effective intellectual training have had to be weighed in other cases than the professions above named, and perhaps the case of the teacher may serve as a case in point. Time was, in England at any rate it has not yet ceased to be, when the most effective mode of providing a good teacher was supposed to be to take boys or girls of twelve to fifteen years of age and set them to teach, teach, teach, till they learned how to do it by experience. I need hardly say that the best opinion of to-day, while setting its due value on actual practical experience of teaching, recognizes the fundamental importance of training the intelligence of the would-be teacher as well, and as a necessary preliminary.

How far can such ideas be applied to the case of business life? This is the important question, on the answer to which hangs the future relation of higher institutions of learning to the direction of industry and commerce. Some very acute leaders in the business world set but a low value on what a university can do for a young man who looks forward to a business career. They incline to regard the time necessary for the college course as wasted, so far as business success is concerned. The late entry into practical life, the difficulty of submitting to the discipline of learning the fundamental elementary features of the work subsequently taken up, the formation of habits of life and thought unsuited to the strenuous activity required by that work, are regarded as detrimental, and conclusively so.

As to the first point, some reference has already been made to another aspect of the lost years. Not educationists only, but practical men of affairs as well, have emphatically expressed the view that the training and disciplining of the mind implied in faithful pursuit of university studies is of greater value than even early and closely familiar acquaintance with the practical details afforded by earlier entrance into business. "The Saturday Evening Post"⁶ of Philadelphia recently published a valu-

⁶ *The Saturday Evening Post*. Philadelphia. January 11, 1902, pp. 11-12.

able article, in which the subject was discussed in relation to views of leaders in railroad work. Among the opinions quoted were some which set but slight value on college training; others, however, took the opposite view, and, among them, and typical of several, was the statement of the President of the Boston and Maine Railroad, Mr. Lucius Tuttle:—"Everything else being equal, I think that the college graduate in the end will be more successful in any class of business than the young man who enters service after a common or high-school education." Another railway official was quoted as saying:—"One of the strongest arguments, I think, in favor of a college education for a young man is the fact that most, if not all, successful business or professional men who have themselves been deprived of the advantages of a college education, insist on their sons enjoying those advantages." Eloquent testimony, if silent, is certainly afforded by this practice, to the estimate by men of affairs of the value of the best education that can be got, value from the point of view of business utility as well as personal satisfaction in the possession of a cultured mind. The past successes of men who had not such a training do not demonstrate that it will not be, not only useful, but maybe even indispensable, for success in solving the more complex problems which will have to be taken in hand by the next generation of business men, and in the handling of which the competition of men who are furnished with whatever advantage thorough education can give will need to be reckoned with.

The second point of disadvantage named above has two aspects. The college-trained youth may meet with suspicion and dislike from those who, lacking his advantages, are thereby prejudiced against him. He may, further, be unwilling to submit to drudgery or may think he has no need to go through the unpleasant experiences of the beginner; he may over-estimate his own knowledge. How far these things will be a hindrance will depend on the personality of the man to a very large extent. Consciousness of power may quite as reasonably serve as a reason for genuine modesty as for the opposite. If the college course embraces no attempt to deal with technical details, the student who has gained a really helpful knowledge of principles will be pretty certain to be aware of his woeful ignorance of precise details and of the need to apply himself, when the opportunity occurs, to the acquisition of that kind of knowledge. The

disadvantage in question is, in fact, not so much one attaching to college education in general, as to the disposition of some of those who have contrived to escape learning some of its most important lessons.

As to the influence of college life and training in developing habits which are disqualifications in business, a few words on two aspects of this matter may be permitted here. Some of the older universities are unquestionably frequented by a class of young men whose habits of life, and whose attitude towards work, are certainly as opposed as could well be imagined to the habits which make for success in any active employment. The doubt may be suggested whether these either set the tone or should be regarded as in any sense typical products of their university or universities in general. A wasteful style of living, ostentatious expenditure, a systematic neglect of work, the elevation of sporting interests to the position of a dominating influence in life, these are surely not characteristic features of university life in the community in which we live. The second point worthy of attention is that, in our days, the training of a university course need not be such as to alienate the sympathies of the student from practical affairs; the absorbing interests of his life as a student may be matters of real present practical interest. I do not desire to undervalue the older lines of university study, nor to suggest, what is contrary to actual fact, that any thoroughly educational course need unfit a student for practical affairs. Experience shows the contrary to be true. Yet, so far as the less capable are concerned, it is a matter of no small importance that university courses of study offer more and more that has an immediate bearing on social, political and mercantile interests. Without actually professing to substitute any part of the practical detailed training of actual business, university courses are being made available in more and more centres, which embrace subjects that will continue to interest the student after his graduation, and with which his life as a business man compels acquaintance. The sympathies of the student need not be enlisted solely in matters alien to his future pursuits. He need not learn, even by implication, to regard the matters of practical life as unworthy of the devotion of the best faculties of the best men. Fears are sometimes expressed that the effect of submission to the routine of a university course may be to crush out individuality, to smother native genius. With the aid of the new developments, in which different universities in many lands are vieing

with each other to afford the most helpful opportunities for a class whose importance is increasingly realized, there need not be any great danger of such results. I have not much fear that the man whose native talents would bring him to the front in spite of lack of regular training, would be crushed by any reasonably elastic system of higher education, while those who fall short of the very highest native ability are absolutely dependent for great success on efficient training.

The fact that earnest effort to provide a suitable opportunity for education of the highest grade in special preparation for business is to be seen in many lands, is not of necessity a proof that business men ought to seek to use such opportunities. Yet it does convey the suggestion of a general recognition of an equally general need, and it is barely reasonable to suppose that a universal mistake is being made. Germany's work in this direction is matter of general knowledge, and the reputation of some of its schools is widespread. France and Austria, Belgium and the Scandinavian countries all manifest activity in the same work. Details may be omitted, tempting as is the occasion for offering special evidence in support of this general assertion. State assistance and private generosity are associated in the furtherance of an object of recognised importance. In England the new University of Birmingham is organising a Faculty of Commerce; the re-organised University of London includes such a department, while in Manchester and Liverpool the local colleges are developing their activities in this direction. In the United States we find distinctively commercial schools in existence as part of the Universities of Pennsylvania, Chicago, California, and Wisconsin, and in the Amos Tuck School at Dartmouth College, At Columbia University and the University of Illinois, preparation for the establishment of such schools is in progress. At Harvard, Yale, Johns Hopkins and a number of other universities, instruction intended to fit students for business is given in regular undergraduate and graduate courses, and both in some of these and in others, the facilities for pursuing a course leading to graduation which shall include considerable study of subjects directly bearing on business and on political life, are being steadily improved towards the high level already attained in the case of those whose names are mentioned above. In a few cases the facilities to which we refer have been available for a considerable period of years, but in most the development is relatively recent, and is strictly

in response to the growing demands. President James, in an address⁷ delivered rather over a year ago, called emphatic attention to the fact that, "it has been, as a rule, business men who have stood behind the movement": the founder of the Wharton School in the University of Pennsylvania, now twenty-one years established, was a merchant; the American Bankers' Association, impressed by the work done in that school, have urged its imitation; while the New York Chamber of Commerce has been actively concerned in the development at Columbia College, which is only hindered by lack of funds from establishing a special commercial department. Business men are realizing the deficiencies in the educational equipment of their employees, and are supporting and endowing the institutions which are earnestly trying to supply the means of remedying the deficiencies in question. This extension of the facilities offered to students at the universities is a means by which new bodies of young men are brought within the influence of those universities, with all that that implies. These institutions are not simply doing better work for students who would have come to them in any case. An illustration of this is afforded in the results of a special enquiry, made by Professor Scott, of the students at the School of Commerce in the University of Wisconsin.⁸ Of the eighty-four students who had, up to the date of the inquiry, registered in the school, no less than twenty-six replied that they would not have gone to that or any other university had not the School of Commerce been established. They would have gone directly into business. The question might be asked whether universities are serving the communities in which they are placed as fully as they ought, when, for want of proper provision of suitable instruction, many have to turn from their doors and fight the battle of life without the aid of the weapons with which university training would equip them.

A. W. FLUX.

⁷ *Papers and Proceedings of the Thirteenth Annual Meeting of the American Economic Association, December 27-29, 1900. Relation of the College and University to Higher Commercial Education*, by Edmund J. James, especially p. 153. A valuable bibliography is given at the end of the article.

⁸ Note ii. to Professor James's address.

UNIVERSITY M.P.'S IN CANADA.

It is idle to complain, as some do, that the Canadian universities have no influence in public affairs and make no impression on the tone of political life, when they are not represented in Parliament. Men of bold temperament have been known to argue in favor of university representation in this country. They were doubtless persons of venturesome disposition, prone to hazardous experiments, or they would never have sought to undermine that democratic system which is at once the marvel of those who reflect, and the pride of those who let others do their thinking for them. In recent years the advocates of university members have been silent. A bill respecting the representation will be before Parliament in 1903, but a proposal to confer representation upon the universities,—or indeed upon any special constituencies where intelligence, learning and character are predominating and determining influences,—need not be expected. It is safe to predict that no voice will be raised in its behalf.

The present system of government in Canada is officially called democratic. Of course it is merely the false show of democracy, because, as John Stuart Mill pointed out, the pure idea of democracy is "government of the whole people by the whole people equally represented." Equal representation we have not. Anomalies exist that cannot be exactly adjusted even by the most impartial tribunal. As long as we persist in regarding the city, or county or parish boundary as a sacred thing, members of Parliament will continue to represent bricks and mortar rather than human beings. The constituencies are absurdly unequal. Large minorities are either unrepresented, or so imperfectly

represented as to have scarcely any voice in Parliament. A majority in the House may be a minority in the country. All this is clearly wrong, but those who think seriously about it usually comfort themselves with the cynical reflection that it might be worse.

Along with this erroneously conceived, and badly applied idea of democracy goes hand in hand the sinister tendency of modern political control. Constituencies are seldom free to select their representatives. The party caucus is all-powerful. In the chief city of each province a central committee with its tentacles spread over the surrounding area, directs the party organization. True, if you are a wealthy man you may apply persuasive and effective arguments to the controllers of the caucus. Elections are expensive. The man of independent mind, unwilling to be the mere slave of the party, and the man with lofty ideals who regards the public service as a trust, are being steadily pushed back. It is unnecessary to exaggerate the condition. Our representation in Parliament is by no means entirely bad. Integrity, ability and high thinking are still to be found on both sides of the House. But the tendency is not reassuring. The pliant, the needy, and the reckless are becoming a more potent factor in all our legislative bodies. You seldom see in Canada a Ministry overturned by a vote in the House. Members, as a rule, dare not help to defeat their party, or they would be hunted out of political life.

"Sir," said Dr. Johnson, in 1779, "I believe we hardly wish that the mob shall have liberty to govern us." Yet that is precisely where we have arrived. Controlled to some extent, not always in the best interests, by the party agents, or manipulated for their own ends by skilful persons whom it were uncivil to call demagogues, it is the mob that governs us. In Canada a good humoured, well-behaved, and for the most part well-intentioned mob it is, but still a mob. In days of yore the object of servile worship was a king, as the fountain of all favours and benefits; to-day the same adulation is paid to democracy, and, in the aggregate, men are unthinking, uninformed, and untrained in the art of government. No one accounted sane deems it possible or advisable to reverse the basis of all this. Democracy must rule. But if one proposes a system of checks and balances to strengthen the conservative forces of the community and to enhance the dignity of Parliament, one is treated to the sneer of the cynic or the cheap oratory of those who pander to the mob. If, for example, you suggest woman

suffrage as an offset to the corrupt and ignorant element which manhood franchise is sure to incorporate in the electorate, you are disturbing the social fabric. If you advocate university representation, you are a friend of privilege, an enemy of the democracy, and you will be invited to retire to that obscurity from which you should never have emerged.

In Great Britain, where it is least required, university representation is retained. A legacy of the Stuart dynasty,—James I. summoned the first members from the universities in 1604,—it must have possessed inherent virtues to have survived three revolutions, counting that of 1832 as one. It was extended by the Act of Union with Ireland. The Reform Bill of 1832 again increased it, and the Act of 1868 conferred a member upon the University of London. On that occasion, Disraeli explained, with his usual sarcasm, that this was intended to provide a seat for Robert Lowe, because “the Right Hon. gentleman found it impossible to show himself upon any hustings with safety to his life.” There are now nine university members in the Imperial Parliament, and a system which enables Professor Jebb, the great Greek scholar, Mr. Lecky, the brilliant historian, and Sir Michael Foster, the first of living physiologists, to sit in the House of Commons must be a source of honour and of safety to the state.

University representation has more than once run the gauntlet of searching criticism. Freeman, the historian, in no sense a reactionary, said of it: “The university franchise is certainly an anomaly. It must submit to be set down as a fancy franchise. But it is a fancy franchise which has a great weight of precedent in its favour.” Mr. Lecky is even more emphatic: “According to any sane theory of representative government, no form of representation can be more manifestly wise.” But why quote the testimony of thinkers and philosophers? Apparently we need them not, and certainly we heed them not. Votes alone count.

Nothing, therefore, is more hopeless for the present than a demand for university representation here. Members for McGill and Laval and Toronto would be party men, doubtless, but they would insist on thinking for themselves, and from such a disturbing element the political manager recoils in pious horror.

A. H. U. COLQUHOUN.

THE HUMOUR OF EXAMINATIONS.

“Examinations,” says Mr. Augustine Birrell, “do not stand quite where they did. Robert Lowe, like Queen Anne, is dead.” But it was not their great champion who made a fetish of them. That hard, clear intellect was too much like a cold chisel to be subject to illusions, — to expect from a dead, mechanical system the nice adjustment to varying ends and circumstances, the discerning adaptability that are the marks of living intelligence. At his own dinner table Lowe once instanced the marriage service to show the difficulty of devising a fixed form to meet all cases. “Why, it makes every man say, ‘with all my worldly goods I thee endow.’ Now, I had nothing when I married.” “But, Robert,” said his wife from the other end of the table, “you forget your magnificent intellect.” “Well, my dear,” replied Lowe, “no one could ever say I endowed you with that!”

We may be sure Lowe championed examinations with a clear view of what they could, and what they could not, do for us. They have done much. They have saved us from “the fool of the family,” and the political nominee in the public service, and from Squeers and the advertising dunces in the private school. They have set a minimum standard in elementary education, and enabled us to spend large sums on it with some security that we get value for our money. So the unthinking herd once more believed it had got hold of the philosopher’s stone to transmute all metals, the elixir to heal all diseases, the “coveted back-stairs” of the Water-Babies, never found by the shirkers, yet impossible not to believe in. Here, said they, is our thought-saving,

are withdrawn from the examiner's rude inspection. Genius eludes his ken, and he is often deluded by mere luck, or the calculating shrewdness of the crammer.

This is well seen in the history of the Mathematical Tripos at Cambridge, in its prime perhaps the greatest and most elaborate examination in the world. The notion that Senior Wranglers have generally been failures in after life is disposed of by a glance at a Cambridge Calendar. They have nearly all attained distinction and proved their ability in other ways. Nevertheless the geniuses have a curious habit of coming out in the second place. Perhaps the most famous case is that of William Thomson, Lord Kelvin. At the age of eighteen, before entering the University, he was astounding the French Academy with electrical papers of extraordinary originality. No one doubted that he would be Senior Wrangler. The memories of old Cambridge men will go back with a thrill to the Senate House, at the stroke of nine on the Monday morning of the first paper. The hundred and twenty candidates are listening in nervous silence for the first stroke of the clock of St. Mary's, to start the great eight days' race. At the head of the long tables stand the Moderators, Examiners, and Proctors, with the fateful papers. One of them, a skilled whist player, has his elbow on a paper, face downwards, before the first candidate, and his right hand upon another before the next; while the sheaf in his left hand has been cunningly rubbed round, with the knuckle, in a circle so as to present the corners of the papers for swift dealing. Minutes and even seconds are valuable in this examination, so it is a point of honour with Mr. W. to be at the end of his table before the other examiners are half way down theirs. Even the most matter-of-fact candidate spares half a minute to watch the race and catch the triumphant smile with which W. turns and saunters towards his bustling but clumsier colleagues.

Among the examiners on this occasion were Harvey Goodwin, afterwards Bishop of Carlisle, and Leslie Ellis. Ellis, pointing to Thomson, said to Goodwin, "I suppose we are about good enough to cut his pencils for him." Yet as the examination wore on, they noticed with some uneasiness that Parkinson of St. John's turned out sheet after sheet with lightning rapidity, while Thomson went through the papers selecting the most difficult and interesting questions, but not producing the almost incredible amount written by his rival. Then

it was whispered that Parkinson had practised writing out bookwork at speed for months together, had made an elaborate classification of the various types of problems; in fact, had brought great business ability to bear on the *examination*, while the genius of Thomson was mastering and adding to its subjects. Sure enough, Parkinson beat Thomson in the Tripos, but was hopelessly behind him for the Smith's Prizes, which are given for original work. Parkinson lived to be one of the most successful and trusted College Tutors ever known in Cambridge, and was the author of several useful text-books. Thomson is known to the world as Lord Kelvin.

Thus genius is not always an unmixed advantage for examination purposes. There is another class of candidates equally baffling to the examiner. I mean those who are afflicted with a certain quality of *dumbness*, bright souls, it may be, but closed in a mute and inexpressive husk. The sympathetic examiner may often divine these luckless spirits behind their prison bars, especially with the help of a little *viva voce* examination, but it is almost in spite of the victim, never with his aid. So, when gazing across a river at the frowning mass of some great castle, one may catch a fancied gleam through loophole, or athwart a casement—was it courtier and gay lady, or pale prisoner caught backwards in a moment from the light and air? Or was it a face at all?

Sometimes pure luck intervenes. Two friends of mine, belonging to the same college, lunched together between the morning and afternoon papers, on each of the five days of the Second Part of the Mathematical Tripos; and at lunch each of them selected his MS. notes on some definite piece of the most advanced work for revision with a view to the afternoon paper. One of them pitched every time on an important subject that was set; the other was not once successful, and, though he had beaten his friend in every college examination, came out two places below him in the Tripos.

The qualities that really pay in an examination, given fair natural ability, are business-like method and industry in preparation for it, and *at the moment* those of the successful commercial traveller, the skilled dresser of shop windows. Your knowledge must be available rather than profound; it must be tied up neatly in parcels, and pigeon-holed on shelves within easy reach, so that you can lay your hand on it with the least loss of time, and make a brave show with a scanty or inferior

store. This is where the "coaches," "crammers," and text-book writers come in. In a text-book you do not expect to find a connected account of a subject. It is all cut up into easy mouthfuls, paragraphs headed thus: "To prove that," etc., or "To investigate the conditions," etc. The coaches and crammers have had hard treatment. Among those I have known have also been the finest teachers I have known. For the most part they have always realized that the best way to pass a candidate is to make him understand the subject, and they have tried to do so. Sometimes, it is true, they make use of their knowledge of student nature in order to induce the idlers to work. It is credibly reported that certain famous coaches for the Cambridge ordinary degree conducted their classes by making each man put up an "ante" before a question was passed round. The first man to answer it took the pool. When a test paper had to be worked on part of the subject, "scratch pairs" were organized, that is, the men drew lots for partners, and the pair that scored the greatest total of marks took the stakes. The ingenuity of this device lay in the incentive applied to each member of a pair to see that *the other man* did some work during the preparation. The misconceptions concerning examiners current among students are so portentous as almost to reach the proportions of international misunderstandings. These terrible creatures are supposed to sit round the table in the Faculty Room, gloating over every victim, and only passing with the utmost reluctance a few men who have done so phenomenally well, that it would be a public scandal to pluck them. Every time the door opens, you would expect a gust of hyena laughter or ghoulish glee to issue from it. I have consorted for thirty years with these gatherings, and have always found them anything but fierce—indeed, for the most part pitifully anxious to find a way of reporting that some one who, after a year's work has scraped together 21 marks out of 100, on an easy paper, can conscientiously be given 25, and so passed.

It is by no means an easy thing to set, year after year, upon a limited range of subject, a paper that shall be free from ambiguity, and fair; shall deal only with the most important points; and yet be slightly different from any that have been set before. It is here that the young and inexperienced examiner is apt to fail, and make sometimes a paper that is open to just complaint. He cannot believe that what is so obvious and familiar to himself is as fresh and mysterious to each

succeeding generation of students, as the problem of the egg before Columbus solved it. And so he is tempted to alter the direct questions he began by writing down, till they become just too involved for a plain man with an uncertain grip of the subject to answer.

When the examinations affect large numbers of candidates, and their results have a money value for many institutions, it is impossible to give too much care to the setting of the papers. Thus, for the Cambridge Local Examinations, which are taken by from ten to twelve thousand schoolboys and schoolgirls every Christmas, the preparation of the papers begins in the preceding March. For instance, there are four examiners in each of the four subjects of the English group. Among these the Shakespeare paper, for example, will consist of perhaps ten questions. Two examiners will take the first five questions, and look over some 5,000 answers each; the other two undertake the last five questions. One of the four is requested to make a draft paper and circulate it in MS. to his three colleagues. After a time they meet and spend three or four hours in criticizing and altering the draft. Then it is returned to the office and set up in type at the University Press. In April the printed copies of the four papers in this group are sent under seal to all the sixteen examiners, and in May they are called together under the presidency of the Permanent Secretary, and the Assistant Secretary, when a long afternoon is spent in subjecting the four papers to the severest handling. Not a trace of ambiguity must be left in any question, since at the 200 local centres the presiding examiners cannot be allowed to begin giving explanations. The questions must cover the subject uniformly, and in no case go outside it. They must admit of giving some credit for literary training, and yet be *markable* for the most part on a rather mechanical system, since two men have to maintain the same standard over as many as 5,000 sets of answers, while working independently at the same questions. The four examiners immediately concerned hold still another long meeting to determine the proportion of marks to be given to each half of the paper, and their exact allotment *by points* to every part of each question. Thus, the first time I assisted in looking over this paper we drew up a standard answer to a question concerning the arguments for the date of the Play, and found that thirty-one separate points could be made, for each of which a certain fraction of a mark was fixed; it was

agreed that full marks for this question should be given to any candidate naming twenty-five out of the thirty-one points.

When the looking over begins in the following Christmas vacation, each of the two examiners concerned with one half of the paper marks first of all with the utmost care a batch of fifty papers, and then exchanges with his colleague. If the previous arrangements have been carefully carried out, it will be found that the two sets of marks differ only in one or two unforeseen points. Corrections are agreed upon, generally by correspondence, and a further set of papers exchanged, so as to ensure that the same standard has been reached. After this it is only necessary to go back at the end of every five hundred papers, and re-mark a paper to see whether the standard is maintained unaltered. It is surprising how rarely any difference is found, even with a literary subject. Extreme care in this respect, as in all points of their general organization, has gained for these examinations the utmost confidence on the part of parents and schoolmasters.

Of the looking over the less said the better. It is well paid. But even at this distance of time a pall of depression falls on me when I recall the arrival of those packing-cases of papers, long as coffins, with the prospect of sitting down for ten hours every day for the month of the Christmas vacation, to read the same answers, the same foot-notes, the same quotations, till the sight of them was nauseous. At first a single paper might take three-quarters of an hour; after some hundreds, perhaps five minutes; at last, when you knew every point and comma, and all possible forms of error by heart, you could read accurately from twenty to twenty-five papers an hour, *so long as the boys' schools lasted*. But there were two thousand girls to come after! And such was the quantity they wrote that fourteen papers an hour was the best record to be expected with them.

Every now and then the long-drawn tedium was relieved by some flash of unconscious humour. Here are some instances, from the Cambridge Local Examinations in the early eighties.

Q.—“What is an abstract noun?”

A.—“An abstract noun is the name of anything which may be seen but not spoken about—as, *Mary's arm!*”

This was by a Junior boy (under sixteen) and sets one speculating on the struggles of the teacher to explain the meaning of *abstract*; as well

as on the extreme to which propriety must have been carried in this boy's home. You may see Mary's arm, but you must not allude to it!

Two years later a girl at the Liverpool centre gave another definition :

"An abstract noun is the name of anything which does not exist, but is much thought about—as, *Love*."

Again, from the same paper;—

Q.—"What is the difference between, 'You punished me more than her,' and 'You punished me more than she'?"

A.—"There is no real difference between these sentences. But you would say, 'You punished me more than her,' if you were speaking of your sister, or a lady, or a person you cared about; and, 'You punished me more than she,' if you were speaking of a servant, or an animal, or a person you didn't care about."

This also was by a Junior boy, and he had evidently been taught that 'she' was the cat's grandmother.

Another Junior boy was giving a character of Queen Mary of England, and drew a lurid picture of her, as even more bloody than the books made out. For this he gave an ingenious reason, in conclusion: "However, we must make great allowances for her, when we remember that she had *no less than five stepmothers*." It was undeniable, and full marks were given him.

The examiner in Dictation had not even these momentary consolations. More than ten thousand times (for one man read the whole paper) he read identically the same passage. One of my friends, who was extremely methodical, sat with a pile of papers before him, and as he entered each mark in the book, turned the sheet with his left hand, and at once began reading the next paper, which happened to be a passage from Macaulay, beginning, "Never before, perhaps." Ten thousand times he read these words on turning a sheet with his left hand. Next year he examined again, of course with a different passage. But at every turn of the sheet he beheld, not the real words of the passage, but "Never before, perhaps." This significant phrase had apparently been printed on his brain in association with the act of turning a sheet of paper with the left hand. The uncanniness of it alarmed him, and he refused to take the subject for the third year of his appointment.

The British public took the examination fever severely. It is not to be wondered at. The system is not an ideal one, but it has its good

points. It is of the nature of compromise, and therefore dear to a practical people who cannot devise a good plan, but can work a bad one to success. Examinations are like Democracy. They are theoretically indefensible, but there is nothing better to put in their place.

One of our ministers is reported recently to have said in the Dominion House of Commons, in discussing the distribution of funds for Public Works among different localities :—

“Fixed principles are no good. For my part I try to listen to what is to be said on both sides with as little bias as may be, and then make up my mind.”

The phrase is open to misconstruction, but, as I understand it, it is the acme of good sense. This is how the British constitution has been worked by wise men, who have accepted its jumble of contradictions and inconsistencies, and wrought actual freedom out of apparent privilege, while the nominal republics too often see their logical constitutions turned into instruments of class privilege and plunder. As a rule, even for the simplest purpose, it is vain to seek to devise an automatic scheme that will meet all emergencies. Judgment is always needed in the application. And so examinations must be employed as a useful tool in the hands of a judicious workman. Like fire, they are good servants but bad masters.

JOHN COX.

THE GRAND CAÑON OF ARIZONA.

All geologists, and many who are not geologists, have heard of the Grand Cañon, the great gorge of the Colorado river, in Arizona; a fortunate few even avoid confusing it with the equally well advertised cañons in the state of Colorado. A word first concerning the essential differences between these. The word cañon, to an English reader, inevitably suggests a slit in rocky ground, with perpendicular walls, narrow in proportion to its depth. Such a conception is fairly accurate as applied to the cañons in Colorado of the Gunnison and the Arkansas. These are in the strictest sense, "box-cañons": walls a thousand feet or more in height, virtually perpendicular throughout their entire length, enclose a gully but a stone's throw in width, which, under natural conditions, is completely filled by the river, in flood-time, at all but a few points. The nature of these cañons (through which the tourist may pass by the Denver and Rio Grande Railroad *en route* from Denver to Salt Lake City) is well illustrated by two points in the construction of this very railroad. In the course of the survey there were places at which the engineers had to be let down by ropes from the top of the cliff above. Again, in the actual building of the line, though it was in general possible to utilize a strip of ground beside the river, not covered except at flood, on which to build up an embankment to carry the track, there is one point where this proved impossible, where a deep stream occupied the whole width of the cañon: here there has been built a bridge longitudinally down the water, supported by braced trusses, wedged in against the cliff-walls. Thus steep and narrow is the typical "box-cañon."

The Grand Cañon of Arizona is widely different. It is true that the actual river-gorge, a thousand feet or so in depth, is of the "box-cañon" type, but this forms but a small detail in the general impression. A rift in the earth more than two hundred miles long, twelve wide, and approximately five thousand feet deep from rim to water, is evidently distinguished from these not only by its vast size, but by the very different proportion between its width and its height.

Before attempting to give an impression of the general character of the cañon and its effect on the observer, it will be well to pause and grapple with our old friend the anxious enquirer. "Stay a moment," he seems to say; "I am in Montreal, not in Arizona. Let us begin at the beginning. Where is this cañon of yours precisely? How does one get there? How can one feed and sleep, if haply one does reach the desired haven? How much (to interpose a sordid query) will it cost?" Let us endeavour to answer these enquiries as precisely as may be.

The Grand Cañon, then, is that part of the gorge of the River Colorado, where the chasm is deepest and widest. It must not be supposed that this length of two hundred miles or so, is the only part of its channel where the river forms a cañon; it denotes merely the most striking portion. As it happens this portion is indicated fairly accurately on the maps by the actual line of the stream. The Colorado river, formed by the confluence of the Grand and Green rivers, has a general direction of S.S.W. About seventy miles from its entrance into the Territory of Arizona, it takes a sudden bend about due west; from this point to its equally sudden turn southward stretches the Grand Cañon. A glance at the map will show that this chasm cuts off the north-western corner of Arizona with some completeness from the remainder of the Territory. In the whole length of the Grand Cañon there are only three or four places where it is possible to cross; the result of this is that the northern rim is absolutely wild and uninhabited, the only other possible mode of approach being from Nevada or Utah, through a country practically untrodden by man. The whole forms so ideal a frontier for purposes of military defence that one is tempted to regret that it does not form the boundary between bitterly hostile nations; it is not even that between friendly states of the Union. As it is, so, in all human probability, must it remain. To bridge a chasm twelve miles wide and a mile deep, without possibility of inter-

mediate support less than three thousand feet in height (think of it, ye engineers!) is a problem, which, like matrimony, is "not to be enterprised lightly." A system of elevators, it is true, with a trolley-line, or even a long incline down the rock face, with a bridge across the inner cañon, is perhaps theoretically possible; but as no one in particular lives on either side, the traffic is hardly likely to be remunerative for some considerable time.

As to the question of a route thither, it is of course possible to travel from almost anywhere to anywhere else by way of any third spot on the globe. The present writer, somewhat in this spirit, approached the Grand Cañon *via* London and Los Angeles; a fairly convenient route would be by Japan. Let us assume, however, that the ardent wayfarer is anxious to go with some directness; that if he has friends in Manitoba or Mexico he is prepared to postpone the pleasure of visiting them till another trip. First, then, he will go to Chicago; this is indeed the very alphabet of travel towards the Western States. He will then, if he is wise, seek the "California Limited" of the Atchison, Topeka and Santa Fé Railroad (commonly called the Santa Fé); he will find on this train most of the comforts he has ever conceived possible in railway travel and several of which he could not have thought unaided. The latest addition is a Whitely Exerciser in a corner of the smoking car, intended, presumably, to prevent fatal effects from too excellent a diet; a genius named Fred. Harvey (a household word throughout the West), has charge of this department. When he has travelled for about two days, spinning over the dull fertility of Kansas, winding up and down among the mountains and forests of New Mexico, ploughing a dusty path over the arid plateau of Arizona, he will at length reach a town of no importance named Williams, where, by the way, a really good hotel is much needed. He will wait here till it pleases the gods to send him on towards his destination; as there is only one train a day each way (such at least was the arrangement last autumn), and this can never quite make up its mind from week to week when it means to run, there is an interval of uncertain duration. When the present writer visited the cañon the railway was not quite completed. Out in the forest (the greater part of the journey between Williams and the cañon is through the beautiful Coconino woods), we were shot out down a dusty embankment on to an equally dusty road where we found a "stage" awaiting us; three very crowded seats, an

awning skilfully designed to take off one's hat and jam it over one's eyes in alternate jolts, a succession of lumps, stumps and bumps innumerable, and dust, dust, dust, the prevailing sensation of life,—these formed for eight miles the Purgatorio of our approach. Now the traveller can, with less amusement but considerably more comfort, go all the way in the train. Just before reaching the terminus, just below the hotel, he will catch a mere glimpse, a momentary vision through the trees, of a distant cliff line in pale soft red, which will startle him into "There it is," before he is conscious of speaking.

The journey from Williams will have taken about three hours ; on the very edge of the cañon the traveller will find a quaint, but very comfortable, log-hut sort of hotel, with an annex containing additional rooms. Rumours are rife of something much more palatial ; a fine modern hotel, containing even bath rooms, (water, which has to be hauled some seventy miles, is one of the luxuries of life here), is to be built some little distance back from the rim, close to the present structure, at the head of the "Bright Angel" trail, by which one descends into the apparently inaccessible depths of the gorge. This, however, at the time of my visit was even more "in the air" than it will be (at an altitude of seven thousand feet), when it is completed. The traveller who wishes to make a stay of some time and to make excursions along the rim, will find hotels and camps at one or two other points ; anything like real exploration requires a camping outfit. The air is the finest and most exhilarating in the world, and the casual wayfarer, who is not prepared to lead an expedition, is inclined to regret that inns at convenient distances (twenty miles or so) are not to be found here and there along the rim, for the comfort of the pedestrian. But hitherto the saddle and the pack-mule have not given place to the boot and the knapsack.

It is the manner of Shakespeare at the height of the tragic intensity of a play, to interpose a scene of the comic or the sordid ; let us in the same way, while sitting in spirit on the very verge of the cañon, take out our pocket-books and count the cost. Our traveller will find that his bill works out much as follows:—The actual journey from Montreal and back, including Pullmans and meals, and a reasonable response to the suggestions of the ministering African, will amount to about two hundred dollars ; his remaining expenses will be in proportion to the length of his stay. The rate at the present hotel is three dollars a

day. The descent into the cañon will cost from four to eight dollars ; if the traveller goes alone he will have to pay the whole of the guide's fee (five dollars), in addition to the hire of a horse or mule (three dollars) ; if he goes with a party, the guide's fee is divided among them. Rides or drives along the rim will cost about three dollars a day ; the adventurous walker may of course save all but the (rather considerable) wear and tear of leather and clothes. It will be seen that a two days' stay (and nothing but the most urgent necessity should induce the traveller to forego the descent into the cañon, which requires one complete day) will cost about twelve dollars ; a week's visit forty or thereabouts. For a more elaborate exploration along a considerable length of the rim, it would be necessary to carry provisions, including water, and blankets, with (possibly) a tent ; it is hardly possible to give any estimate for such an expedition.

We are sitting in front of the hotel, on the very verge ; what do we see ? We find ourselves on the middle point of a great arc, a bay with headlands rising right and left to a somewhat higher level ; these headlands are between two and three miles apart and cut off our view up or down the cañon ; both are thickly wooded (as is indeed all the country along both sides of the cañon) and form a strong colour-contrast to the bare rock-walls. Below us is an absolute precipice, terminated, some hundreds of feet below, by a tiny terrace, succeeded by another and yet another, till the eye reaches an apparently flat floor, the so-called mesa-level.* It is impossible to believe in any practicable mode of descent other than a balloon. Immediately beneath, the eye is caught by a patch of exceptionally vivid green among the grass of the mesa, looking for all the world like a bed of parsley. It is, however, a copse of willows, round a spring, and is three thousand one hundred and eight feet below us ; the trees are high enough to hide a man on horseback. By going out on a small promontory, a hundred yards or so in front of the hotel, we reach a point where the intermediate levels disappear, and we get nearly a perpendicular drop to the mesa. Right in front of us stretch the opposite cliffs of the cañon, twelve miles away, but incredibly clear and distinct ; a back-ground of

* The word *mesa*, which is merely the Spanish form of the familiar Latin *mensa*, denotes a table-land, generally grass-covered, leading to a bluff overlooking a river, or a channel where water has been at work.

delicate red, looking less than a mile off, yet giving a curious sense of unreality, a feeling that one is not looking on veritable rock, but on some sort of dream-scene. One is looking down, between oneself and this wall, a wall which runs level-topped across the line of sight between headland and headland, on a chasm of grassy green, with rocky pinnacles and flat-topped "buttes"* rising here and there. But where, the reader will ask is the river, the author and constructor of the whole cañon? One is tempted to reply "Nowhere," and the answer would be a true one so far as vision is concerned. From the summit, opposite the hotel, no river is to be seen; it is completely lost in the depths of the inner gorge. Looking carefully, one can just make out where this gorge breaks the line of the mesa; a thousand feet below is the turbulent brown Colorado. To catch a glimpse of the stream one must make one's way east or west to the verge of one of the projecting promontories, whence one may see up or down the line of the chasm.

Before taking this walk, let us consider a moment the actual structure and conformation of the cañon, and try to learn what was its history. First, of actual size. It is impossible, by any mere array of figures, to give an idea of a chasm twelve miles wide and a mile deep. The Niagara River, Falls included, could be completely lost in the inner gorge, and nothing would be visible from the rim but spray. Many a considerable range of hills,

"With a place of its own in the world no doubt,"

could be sawn off and toppled into the Grand Cañon without reaching the summit or extending to either rim. Such comparisons give little real idea of size, but they may help the reader to form a conception.

As to the general shape of the cañon, it has been already indicated that we have at each side a series of steps, of which the vertical distances are very much greater than the horizontal. These lead down to the mesa-level, which forms, as it were, a broad and (from the rim) apparently flat, floor to the major cañon. In the middle of the mesa runs the inner cañon, half a mile or more in width, to a depth of a thousand

* The word *butte*, familiar to travellers in the west, denotes a precipitous mountain summit, rising as perpendicular rock for the last hundred feet or so, often, but not always, flat-topped.

feet lower. Such is the general cross-section on which the Grand Cañon is constructed. In actual fact, however, the mesa floor is by no means level, but has a marked though not steep slope towards the river. Nor is the general effect of the walls by any means that of the sides of a box, as might be imagined. They resemble much more nearly the outer walls of a Gothic cathedral, where the horizontal lines are broken up by pinnacles and flying-buttresses. But such a comparison gives little real idea of the vast and wondrous work of the water in carving the ends of the promontories into buttes, turrets, spires, of infinite variety; tables of rock project into the abyss, and terrace below terrace leads the eye down to the black of the central chasm.

A word as to the rock-formations. Even the ordinary wayfarer, completely innocent of geology, cannot but be struck with the wonderful colouring of the Grand Cañon. From the rim down we get first a band of limestone, brilliant white, about five hundred and sixty feet deep; this is followed by sandstones of various kinds, which give the general view its characteristic red, to a depth of three thousand seven hundred and eighty feet; then come the carboniferous rocks and the gloomy Archaean strata of the inner gorge.

It is no part of the present writer's intention to rush into the controversy between the champions of erosion and those of seismic action as the main agency in the creation of the chasm. The main facts are these. The general lie of the strata is markedly horizontal, and the rock-formations are precisely such as we know to have been elsewhere produced by erosion; moreover, the river is still there. On the other hand, those who maintain seismic action point to the curious fact that the Grand Cañon is markedly unlike other river valleys. Not merely does it form a cleft in the very crest of a lofty plateau, but even within a few feet of the edge the ground slopes markedly *away* from the rim; in the case of other river valleys the general slope of the country for miles round is towards the river. They urge also the fact that a few cases of contortion of strata do occur. The general probabilities seem to the lay mind to point to the view that at some very early date the river occupied an originally volcanic cleft, enlarged and eroded this to the present width from rim to rim, and then, as the land slowly rose, and the volume of water grew less and less, cut its way by a succession of ever narrower and deeper channels to its present level. We should have to suppose that some marked and sudden change took place

between the time at which the river filled the mesa-level, from cliff to cliff and that at which the cutting of the inner gorge began, but the main lines of the erosion theory seem probable enough. Only we must picture to ourselves a river vaster probably than any now on the globe, draining an immense area of what is now a dry region; a river big enough and strong enough to cut a gorge through rock twelve miles in width. Our own St. Lawrence, be it remembered, where it runs through rock at the Niagara Gorge, has a channel about half-a-mile wide. The generally perpendicular character of the cliffs seems to preclude the possibility of any considerable "tilting apart" having taken place since the river filled the major cañon. The wonder of so mighty a stream, greater than the St. Lawrence and Mississippi combined, becomes all the more striking when we consider the remarkable aridity of its present basin. Truly the Colorado has fallen from its high estate.

Let us now return in spirit from these dim spaces of the past to the present day and the "Bright Angel" Hotel, the name whereof is due to an Indian legend that an Angel would some day appear as the deliverer of the tribe, in a chasm opposite on the northern side. Let us suppose that it is some hour in the afternoon, and let us take our walk along the rim to some point where a view up and down the cañon can be obtained. The rim of the cañon is by no means a straight line, but is broken up into great bays by projecting headlands; to one of these we have to go to get our view, and the views from all are strikingly different. Rather more than a mile to the west of the hotel is a promontory known as Rowe's Point; we may make our way there either by the road, or (with some scrambling) along the very verge of the cliff. We find ourselves looking eastward right up the cañon; the rock walls stand up bare and majestic; down below we can at last see the brown river, in the heart of its gloomy gorge; even more than before the opposite wall seems incredibly near, by contrast with the miles of cliff along which we are looking, and we now see that it is by no means a mere monotonous precipice, but is broken up into architectural forms as varied as are those of the South face on which we stand. The white limestone, the brilliant soft red sandstone, and the black chasm beneath, combine to give colour contrasts of amazing beauty. But the dominant note is the red, a red of strange, unearthly delicacy. Fantastic towers and temples stand out in the gorge at

every level ; it is like some ruined city of an ancient Titan race. Only here and there do we see anything like a real precipice stretching all the way from the rim to the mesa. It is a sight like nothing else on earth ; the size, the forms, the colouring—any one of the three would be enough to make it the wonder of the world ; and here we have all. It is said (and the present writer can well believe it) to be the one spot where the expectant sight-seer is never disappointed ; the most hardened apostle of the doctrine of *nil admirari* is startled and awed into reverential delight. No words and no pictures can give any real idea of the scene. If we turn to the west, we find ourselves in presence of a view of the same general character, yet infinitely different—equally awful, equally beautiful, equally indescribable.

Every change of view-point along the rim will give us some new wonder, hitherto unseen, or some fresh and striking aspect of forms which we thought we knew ; and, be it remembered, there are two hundred miles of rim along which we may choose. Let us go but a mile or two further west, round the west bay, out on the next headland. When you have feasted your eyes on the turrets and pinnacles up and down and across the chasm, when you have traced the river, here visible for some miles, as far as the eye can follow, then look down immediately to your left. You will see (it is not a common sight, even in the Grand Cañon) a red rock wall, dropping sheer down three thousand feet. So close beneath you is it, that you feel as if you could touch it with a walking-stick ; the very texture and "bloom" of the cliff seem beneath your hand. Or, again, walk a mile or so east from the hotel, and you will come to a small cairn on a headland. Below, the rocks are so piled and heaped that the mesa floor seems to have disappeared ; you are looking down on a mountain range, a range whose peaks rise thousands of feet into the air and are yet beneath your feet. Look carefully down the line of that cross-cañon, and you will see at the end of it a tiny speck of water ; that is where we shall reach the river to-morrow.

To wait at Rowe's Point till sunset is to see all the beauty and magnificence of the cañon glorified by the glow of evening. The colour grows softer and more unearthly than ever ; an ethereal, translucent red like nothing else in the world. The lengthening shadows show up in vivid perspective the contours of the cliffs. The black gorge below grows gloomier each moment. We stay and watch the shadows rise

higher and higher up the walls and buttresses, till only the very pinnacles and the white limestone beneath the rim are still brilliant against the growing darkness. At last these, too, are shrouded in night, and only the vague gloom of the abyss is left.

It is early morning, and we look out in the bright Arizona sunlight across to the north rim, and reflect that to-day we are to make intimate acquaintance with the depths below. A start is arranged for nine o'clock, and, clad in our oldest clothes, we mount the trusty horses that are to take us down. One's impression of the precipice immediately below the hotel leads him to imagine that he will begin with a ride some distance along the rim, and then "strike a trail," which will take him, by a long slant, down the precipice. The reality is far different. An apparently trivial path, starting a yard or two west of the hotel, soon turns abruptly down, and one finds oneself zigzagging down an almost vertical slope. The guide goes first and shows one the way, a superfluous aid when the only alternatives are the track and instant destruction. The slant, on which the path lies, is amazingly steep, a declivity in the innermost cleft of the bay, where water (for even in Arizona it rains occasionally) and weather have combined to produce something only just not quite vertical. To those with tender and susceptible nerves, those to whom a gaze over a precipice unprotected by a parapet is a sensation almost too exciting, the descent is a kindly one. Here and there, it is true, at the turn of a zigzag, the rider gazes over into sheer space, and the habit, universal with all horses and mules, of preferring the outermost edge of the trail, does not tend to reassure; but in the main the eye is satisfied with the sight of a slope below, with rocks and scanty bushes. One feels that even if—if something were to happen—one would have after all a fighting chance for life; a faint chance, perhaps, when one takes into consideration the roughness and the intense steepness, but still a chance. As a matter of fact, no accidents have ever happened. Down and down we wind; at times our gallant steed endeavours by halting to beguile us into the belief that we should be more comfortable on our own legs; but we urge him on ruthlessly down the path. After an exceptionally steep bit, we seem to be really at last going straight over; the path takes a rapid turn, we feel and hear the hoofs clattering and sliding over the bare rock, and we find ourselves once more on a fairly broad and moderately level bit of path. The most striking features of the descent are the ever-

changing aspect of the rock-walls, on both sides, as we get a continually lower point of view ; the growing heat ; and the wonderful way in which the trail takes now one, now the other, side of the rift down which we are going. Truly he who discovered this trail was a skilful man and a venturesome. We notice the change from the limestone to the sandstone as we go down, and now and then our attention is directed to a piece of track below, looking more like a mouse-run than a horse-trail. At one point, about half-way down, we are bidden to dismount ; we are coming to "Jacob's Ladder," the worst corner of the descent. An awkward double turn leads us out through a gate between high cliffs, over a path made into steps with pine logs. A few yards below, the track is broad and fairly level, and we mount once more. At last we reach a point where grass is only a few feet below us ; then it is reached, and half a mile or so down the slope, the slope which looked so level from above, takes us to the willows. Here, as at many points within the cañon, though nowhere for miles above, is a spring of delicious water. After our hot three hours' ride, thirst demands attention. We must also fill our water-cans for lunch. From this point we have two courses open to us. Either we may go to the left of the little stream which flows from the spring, and pursue a fairly level course on horseback to the edge of the inner gorge ; from here we can look right over to the river and get a good idea of this chasm in the oldest rocks known to man. Or we may elect to go down to the actual water. To attain this end, we go to the right and after a short time find ourselves ascending rather than the reverse. A mile or two of up and down, scrambling on horseback over grassy slopes, and we reach a point under the shade of a great white rock ; here we halt for lunch ; then, leaving our horses, we proceed to climb down into a subsidiary cañon. It is not a climb in the climber's sense ; any mountaineer would walk down it with a camera in one hand and a glass full of champagne in the other ; but it is a fairly searching scramble for a few hundreds of feet, none the less. We reach a stream bed and have only to follow this (it is not at all steep) down to the river. At last we are standing on the edge of the Colorado ; we look back along the line of the cañon down which we have just come and see far above us the cairn already mentioned on the very rim ; it is the only part of the south rim visible. In front of us runs the brown

river, turbid and swift. We realize vividly the nature of Powell's amazing feat in coming down it in boats. The sense of awful loneliness is overpowering; the towering black cliffs, the distant glimpses of the red of the upper walls, the sands along the stream, all seem to suggest that we are the only inhabitants left of some strange old world. At last we are reminded that the summit must be reached by daylight, and we start reluctantly back. A smooth easy walk up the stream bed, a steep scramble up to where we left our horses, some rough riding over steep grass slopes, with a glimpse of ancient cliff-dwellings perched high on the rock, take us back to the spring. Our horses need a drink, and sympathy bids us share. Then we climb up slowly, halting every few yards to give our steeds breath. Our guide challenges us to find the track; we can follow it with the eye for a certain distance, then confess our failure; we are brought up sharp by a precipice of bluish rock, insurmountable. It is at this point that "Jacob's Ladder" comes, taking the track across the face and then round the back of this cliff. We are struck with the work that has been done, and is continually going on, to make the track easier and safer. Here the rock has been blasted to widen the path; there an awkward corner has been made easier by a projecting balcony of logs, stones and earth. At last we reach the top, and have daylight left to watch the shadows deepen ere we go in. As the reader will have inferred, the route to the river by this trail is far less exciting than when the tourist descended the "Old Hance Trail" and had to be let down by ropes over precipices for some hundreds of feet of Archaean rock. We feel we have made acquaintance with the Grand Cañon in its immensity; a climb down and up which has taken the whole day does help one to realize the vastness of scale of this greatest of chasms.

At last comes a time when we must leave the wonder and mystery of it all behind us, and return to the workaday world. What are our main impressions? What do we carry away with us? If we were asked to sum up in a phrase the scenic effect, its clearness, its unreality, its marvellous brilliancy and softness of colour, we should call it a sunset in stone. But the feelings are more impressed than the eye. A sense of awe, almost of terror, at the majesty of it all, overpowers the beholder. And yet with this the beauty, the glamour of such ethereal splendour, takes us captive and uplifts the heart. Indeed

no fitter word can be found for the feelings, as one gazes into those depths, than the ancient sacred phrase of reverence "Sursum Corda." Buttresses, cliffs, pinnacles, form a monumental temple chiselled out by God's own water ; the history of the remotest past is also the marvel and glory of to-day.

And so memory turns her back on the greatest wonder of the world.

FRANK CARTER.

DEORSUM.

Heaven and song and gold,
 And lights that swim—
Ah, for the earth of old !
 My cherubim
Together lie in fold
 There—he by him.

Surely a moment past
 I climbed the stair,
And saw the moonbeams cast
 On flaxen hair,
And stooped—a kiss—my last—
 On foreheads fair.

Some captive fancy caught
 In waking hours
Was loosened into thought
 By slumber's powers :
A smile—as if I brought
 His favourite flowers.

There on the table stood
 The playthings—near ;
The martial frame of wood,
 The grenadier,
Little Red Riding Hood,
 Guarded—for fear.

Then silently I crept
 Back to my room,
 My anxious heart now swept
 To joy, now gloom :
 Thought died away ; I slept,
 Unknowing doom.

It seems ethereal, strange,
 This perfect life !
 My yearnings downward range
 To earthly strife,
 To flesh and blood, to change—
 Once more a wife !

I cannot see for glare
 Of golden ray ;
 My white lips move in prayer,—
 O for earth's day,
 Earth's night and cooling air,
 Earth's love—always !

At dusk beyond the heath
 A widowed soul
 Stands by my grave beneath,
 Human and whole,
 And lifts the lily wreath,
 And reads the scroll.

O taste of by-gone bliss !
 There 'mid earth's dead
 My smiling lips he'll kiss,
 Revermeiléd,
 And take my hand nor miss
 Old words we said.

Then the steep lane we'll climb
 Where hawthorns blow,
 Where in late winter time
 Flowers break the snow,

And faint the belfry-chime
Beats from below.

Afar the red cliffs lean
O'er beaches white ;
The darkening bay serene
Dissolves in night,
And the curved shore is seen
A lane of light.

Look, love ! The bright orb steals
O'er yon dark crest,
And vale and roof reveals
Where in our nest
Soft eyelids slumber seals,
By me unpressed.

Beloved, come ! I stand
Beside the bed,
And stroke with human hand
Each tiny head,
Once more on earth's far strand
Recomforted.

CHAS. E. MOYSE.

STEPHEN PHILLIPS.

In the decade since the death of Tennyson, perhaps no English verse-maker except Kipling has received so large a meed of praise as the young lyric-writer and dramatist, Stephen Phillips. And this poet whom the critics have delighted to honour has attained to his measure of fame without any of those special appeals which must be taken into account whenever Kipling's popularity is estimated. Mr. Phillips has refrained from writing patriotic poems, either laudatory or warning, he has to a great extent ignored modern problems, he has set at naught popular taste, and yet he has, in a measure, brought the public to him. Three of the four little volumes which bear his name are dramas, of which one has already seen a season of successful presentation, and the other two are even now on the boards in leading London theatres.

Literary English plays which are read as well as performed and are found worth the reading, are sufficiently rare in these latter days to make their author an object of some attention. Sundry magazine articles on Mr. Phillips have appeared within the last year or two, and from these, the only sources yet accessible, we may piece out a slight account of his life and personality. He was born, it seems, in 1868, and through his mother he claims kinship with Wordsworth. His

Poems, (John Lane, London and New York, 1898). *Paolo and Francesca, A Tragedy in Four Acts*, John Lane, London and New York, (1900.) *Herod, A Tragedy*, (John Lane, London and New York, 1901). *Ulysses, A Drama in a Prologue, and Three Acts*, (London, MacMillan & Co., New York, The MacMillan Co., 1902).

first poetic inspiration came from Coleridge, when he was a boy of fifteen, ill at school, and his mother read "Christabel" to him. From this time on, he made many essays at writing verse, but none of the earliest efforts were even given the opportunity to live. The first verses to appear in print came out in a little volume published in Oxford, in 1890, and entitled "Primavera; Poems by Four Authors," a modest octavo of only forty-three pages, which was, however, fortunate enough to be reviewed in "The Academy," by John Addington Symonds. The critic gives judicious and almost equal praise to all four young authors. Of these all but Phillips were undergraduates of Oxford. Two of the names have not reappeared in literary annals, but the third, that of Lawrence Binyon, a cousin of Phillips, has won a good deal of notice.

Phillips had meanwhile entered as an undergraduate at Cambridge in 1886, but at the end of his first term was allured from his studies to the stage. He seems to have been with Mr. Benson's Shakespearian Company for six years, a time which he evidently spent in studying stage conditions rather than in perfecting himself as an actor. The one part in which he is said to have attained distinction is that of the Ghost in Hamlet, a minor success which, in view of Shakespearian traditions, might well gratify an aspiring young dramatist. He himself confesses that he made many attempts at play-writing at this period, but none of them reached completion. In 1892, through the influence of his Oxford cousin, it is said, he left the stage and settled to the life of study and authorship which he still pursues. For the first four years the silence was unbroken. Then came a poem which set grave critics talking extravagantly, and from that time onward recognition has been unflinching and praise without stint. Of the way in which he takes his laurels we have the pleasant testimony of Mr. Edmund Gosse, who says—"He is not the dupe of that extravagance of laudation which has suddenly assailed him. He possesses in the company of his friends, a saving grace of humour which will probably continue to secure him against the greatest danger, that of 'taking himself,' as we say, 'too seriously'."

It is something of a relief to have Mr. Gosse's note as to this "saving grace of humour," for it is a grace of which the poet's work gives infinitesimally small evidence. The latest play, "Ulysses," shows somewhat stronger touches of it, so one may conclude that it was

perhaps purposely excluded from the "high seriousness" of the earlier pieces. Serious all Mr. Phillips's work certainly is in theme and treatment, and he succeeds best in those subjects which give scope for a strong but well controlled imagination to picture clear, calm visions—visions which set themselves naturally to stately melodious lines.

"Christ in Hades," the poet's first ambitious attempt, shows all his characteristic qualities: the boldness which chooses a subject remote yet often treated, the power of presenting a clear picture, the scrupulous yet unworn diction, the melody of line, the feeling for deep, tragic melancholy. When this poem appeared in book form it was in a little volume of lyric and other experiments of varying degrees of merit. "The Woman with the Dead Soul," "The Wife," and "The Question," are attempts at realistic presentation of modern problems too successful in their way to be quite pleasant reading, but valuable as showing a certain power otherwise held in check. "Marpessa," a long piece of blank verse on the somewhat outworn theme of a maiden choosing a mortal rather than Apollo for her lover, has much richness of phrase, but is not otherwise remarkable. "Lazarus," shows on a small scale the same vision-making power which makes the "Christ in Hades," distinctive.

"The light which I have followed all this way
Out of the darkness grows into a face"

begins the poem, and one feels that in these words one hears the poet's description of the working of his own imagination. His visions come best out of the remote past, and his care is less to make his figures actual and present, than to make them in their remoteness harmonious and beautiful.

For his drama subjects he travels farther and farther into the past—"Paolo and Francesca," "Herod," "Ulysses"—well worn subjects all, but in their treatment far from being imitations.

The first of the three remains for me the most beautiful. Many liberties have been taken with the thirteenth century Italian tale. Characters are altered at will, and circumstances suppressed or emphasized, but the outline is that which Dante gives us. In this latest telling the last trace of grossness, of the vulgarity of intrigue, is removed from the old story. Paolo and Francesca are urged by a remorseless fate, almost as irresistibly as in Dante's vision their spirits are driven by the wind. They struggle to free themselves, but

to struggle is useless. From the very first scene where Paolo leads Francesca "out of sunlight" into the gloomy hall of Castle Malatesta, the shadow begins to fall, and one feels that the end can be nothing but darkness. Nothing breaks the harmony of this majestic approach of sorrow. Once only, in the second act, is there an attempt at interlude in the form of a soldier's dialogue and drinking song, but it is very brief and even in it the note of sadness is not quite lacking. Through it all we see "gorgeous tragedy, In sceptred pall come sweeping by," resistless as the fate-moved drama of the Greeks.

The characters, moulded to the working out of the common end, are not the traditionary ones, but creations of the author, to suit his conception. Francesca is a fair, delicate, shrinking child, "hither all dewy from her convent fetched"; Paolo, a young warrior in the flush of his splendid youth, full of passion and unavailing scrupulousness; Giovanni, an absorbed man of affairs, "with mounded back and sullen gait," but with rough tenderness for his young brother, and jealousy that is very slow to kindle. Two minor figures are among the best in the play; Lucrezia, the elderly cousin; and blind Angela, the nurse, who foretells the doom of Malatesta. To Lucrezia, a bitter, love-starved woman, roused too late to tenderness for Francesca, are given some of the strongest lines in the poem. Blind Angela voices the fearful prophecy—

"Unwillingly he comes a-wooing : she
Unwillingly is wooed : yet shall they woo.
His kiss was on her lips ere she was born.

And again, at the climax of the tragedy, it is she who is given the Dantesque phrase—

"Two lately dead rushed past me in the air."

It is unnecessary to follow the course of the well-known story. The close is sufficiently characteristic. Lucrezia and Giovanni look on the bier; she, on the ruin which she might have prevented; he, on that which he has done. They speak:

Gio. "I have borne one child and she has died in youth!"

Luc. "Not easily have we three come to this—

We three who now are dead. Unwillingly
They loved, unwillingly I slew them. Now,
I kiss them on the forehead quietly."

Then with a shudder—

“She takes away my strength.
I did not know the dead could have such hair.
Hide them. They look like children fast asleep!”

In “Herod” we have something more positive, more forceful, more life-like, but less delicately lovely than “Paolo and Francesca.” The characterization of Herod himself is the most complex which Mr. Phillips has attempted. The story is one which lends itself admirably to dramatic treatment. Even through the sober narrative of Josephus, its romance and tragedy burn in flaming colours. The rise of the obscure Idumæan from nothingness to the highest seat in Judea, with all that it involved of daring wafrare and cool unscrupulous diplomacy is in itself a wonderful tale. When we add to this the episode of his passion for Mariamne, the beautiful daughter of the Maccabees, and the clash between love and ambition, in which Herod putting ambition first, lost all—we have sufficient material for a tragedy. Out of the complicated web of the historic narrative Mr. Phillips has chosen a few threads, shortened or lengthened them with justifiable license, and produced a comparatively simple situation. Of the characters who actually surrounded the king and hurried on his doom, only a few are retained. The evil mother and vindictive sister are there, but the more villanous mother-in-law has been mercifully eliminated. Everything is done to simplify the plot and make the principal characters stand out clearly.

The story opens at the point where Herod, secure of his own position, has in his fondness for Mariamne, made her young brother, Aristobulus, High Priest of Jerusalem. Mariamne is at the height of her triumph, a charming figure, proud, beautiful and happy, rejoicing in the love of her mighty husband, and her fair young brother. Aristobulus, as the representative of the old line, is the darling of the people, and hence a peril to Herod. He has no force of his own, but his youth and beauty, his holy office and the traditions of his House surround him with a mysterious attraction. It is said that

“All behind him is
A sense of something coming on the world,
A crying of dead prophets from their tombs,
A singing of dead poets from their graves.”

The reverence of the people becomes too outspoken, and Herod, counselled by evil ministers, and true to his own cynical policy—"Still must we trample, crush, corrupt and kill"—has the boy secretly put to death. Blind to the intuitive power of the Queen's affection he goes away, secure in mind, to a conference with Octavius Caesar. When he returns, it is to find Mariamne hopelessly alienated; and her utter repudiation drives him to a frenzy which can end only in tragedy.

The action of the play, full of quick turns and striking situations, is almost inconceivably swift, following the movements of the King's rapid changes and many-sided character. Herod says of himself:

"Oh! since my birth I have lived in fierce contrast,
For ever half in lightning, half in gloom;
The brighter still the public brilliance glows,
The deeper falls the darkness of the hearth,"

and in the drama the contrast is never forgotten.

It is in the last act that we have in its full intensity the passion and life of the play. The Oriental magnificence of setting is paralleled by richness of phrase in description and oration. The audience hall, the unchanging scene of the whole play, is filled with an imposing multitude—captains, councillors, scribes and priests, all consulting as to the best means of restoring the health of their King. "All Jewry on that single brain depends," they declare; and he is wandering, "on the Dead Sea marge," half mad and inconsolable. Before leaving Jerusalem he had, in a moment of frenzy, ordered the death of the Queen, but he does not realize that over-zealous ministers have put the sentence into effect. It is agreed by the physicians that he must not learn the truth lest his disordered brain should utterly give way. "Each man stand sentinel 'gainst truth," they order, "And watch the gates against reality." And as he comes among them, unkempt and ragged, weary and broken, they assail him with imploring voices to give his mind to affairs of state, to issue orders about the building of the temple. He responds fitfully, sends out lordly mandates, and breaks off continually to send wistful, humble messages to the Queen.

As the futility of their efforts forces the councillors to greater ingenuity, and as Herod becomes more and more convinced that horror lies in wait for him, the air becomes charged with a double excitement. Priests press forward with specimens of material for the temple, "Marble

and porphyry and red pumice-stone." The whole scene is alive with Oriental colour, Rubies and emeralds pour from sacks, pearls drip from the hand, a bar of gold flashes in the sunset light, and Herod thunders out in gorgeous rhetoric his visions of the Temple—"A dome of beaten gold, to be a counter-glory to the sun".

It seems for a minute that the efforts of his people have been successful, when the royal spirit of the King blazes forth and he calls for robe and crown. Amid the "All hails" of his court, he sends out an imperious summons for the Queen, and in a last outbreak against the despair which is ready to master him, shouts his wild vaunts of vain defiance—

"Am I that Herod
Who builded yonder amphitheatre,
Rivalling Rome ?
.

That so have lived, wrought, suffered, battled, loved ?
I have outspanned life, and the worm of God,
Imagining I am already dead
Begins to prey on me. Am I that Herod ?"

In his ecstasy of passion he utters insane impiety about re-creating his Queen, who he knows now must be dead :

"Can I
Not imitate in furious ecstasy
What God hath coldly made ?"

For answer he is given the sight of his Queen borne on her bier towards him, while at the same moment he is bound where he stands, motionless in a cataleptic trance.

The only relief from the horror of the final situation is in the voice of the Chief Priest sounding forth in the words :

"Now unto Him who brought His people forth
Out of the wilderness, by day a cloud,
By night a pillar of fire ; to Him alone
Look we at last, and to no other look we."

Turning from "Herod" to "Ulysses," we find a drama much less intense, less swift in action, governed by passions less strange and violent, but perhaps therefore more generally appealing. It is, in the reading, less dramatic than Herod, but we are told that the scenic arrangements are so carefully made, that it is in effect a wonderful piece of stage-craft. One can imply as much from the minuteness of the author's stage directions. The variety of the back-ground, which changes from Olympus to Earth and from Earth to Hades, insures a sufficiently varying impression, which must assist the rather deliberate movement of the piece. There is much melody and beauty in the lines, and a careful dignity of language which, lacking the hot extravagance shown in "Herod," reminds one of the stately loveliness of the earliest drama. "Ulysses," indeed, resembles "Paolo and Francesca," in manner, but it is lighter, less passionate and has less of human interest.

As a prologue we have a conversation of the gods on Olympus, very carefully rendered in heroic couplets, but whether the poet was conscious of it or not, the sonorous lines are lacking in the dignity of thought befitting immortals, and the general effect is not inspiring. The weakness of the whole piece, for one cannot but be conscious of weakness in it, is due to the presence of this divine machinery. The motive of the drama is the homesick longing of Ulysses for Ithaca and Penelope, but until he received the magic touch of the caduceus of Hermes, he was perfectly happy with Calypso on her "odorous, amorous isle of violets." The crisis of the situation is the peril of Penelope from the final importunities of her suitors, from which Ulysses, guided home by Athene, rescues her just in time. One can not, however, induce a belief in the reality of the peril, when forearmed with the knowledge that Athene is on the side of the faithful wife and can at any time interfere to confound the suitors, who are at best very poor specimens of mere humanity. Moreover, the whole matter has been settled from the beginning. When Zeus in the council of the gods has promised to Athene freedom for Ulysses, we know that the wanderer must at last win home. We see him buffeted on the sea, but know that Poseidon cannot prevail. We see him a flesh-clad mortal daring the perils of the awful world of shades, we see him afloat on the dreadful river, but if he quails there is a god at hand to infuse new courage, and we cannot lose the assurance of his ultimate safety.

Once having got over this basic defect, we find very much to admire in special features of the play. There is much beauty in the painting both of scenery and characters, and occasionally a touch of fine psychological penetration. In *Calypso*, for instance, we have a very skilful presentation of honest jealousy, baffled and teased by the thought of that unseen rival whose simple virtue can countervail her voluptuous charms. It is a little paradoxical that the most human character in the play is an immortal, while the high and puissant virtues of fidelity and perfect trust are given to her rival—a woman of earth.

The finest passages in the drama are in the long speeches—in the one in which Ulysses declares his longing for home, and in the one which expresses Penelope's yearning for her husband. The cry of Ulysses is keen and strong :

“Ah, God ! that I might see
Gaunt Ithaca stand up out of the surge,
Yon lashed and streaming rocks, and sobbing crags,
The screaming gull and the wild-flying cloud :—
To see far off the smoke of my own hearth,
To smell far out the glebe of my own farms,
To spring alive upon her precipices,
To hurl the singing spear into the air ;
To scoop the mountain torrent in my hand,
And plunge into the midnight of her pines.”

In the words given to Penelope there is a haunting quality :

“Thou knowest the long years I have not quailed,
True to a vision, steadfast to a dream,
Indissolubly married to remembrance.”

The characters who speak these lines never move far from the rôles which the lines indicate. They are exceedingly consistent. The quality of consistency is one which is found in all Mr. Phillips's characters. Sometimes they seem to be too true to their artificial parts to be quite true to life. They do not stand the old test of being conceivable apart from their surroundings. Ulysses is perhaps an exception, but then we knew Ulysses so long ago that it is hard to separate our traditional ideas from Mr. Phillips's conception.

I think I have seen somewhere the comparison of the art of these three dramas to that of fresco painting. The analogy is not without truth. The groups in "Paolo and Francesca," "Herod," and "Ulysses" are not marble figures carved in the lines of life on every side. They are not even paintings done in wonderful perspective. They are rather the undeceitful wall-paintings which present-day art declares to be the proper decoration for broad surfaces. Mr. Phillips's art seems to me to be eminently decorative, and within its own limits this kind of art is wonderfully beautiful. It is surely hyperbolic praise to talk of Mr. Phillips's "Miltonic line," or his "Shakespearian power." It is no disparagement to the present-day poet to say that he has not attained to these things. Much praise remains as his due when all has been said.

Three or four pieces of work, unflawed by grossness or grotesqueness, true in colour, perfect in harmony, constitute no small accomplishment for a poet still in his thirty-fourth year. Time may bring him much increase in power and insight. In the meantime we are thankful for the fair visions of his youth, and we cannot think that the decade which has produced these should be counted a barren one in the history of English poetry.

SUSAN ELIZABETH CAMERON.

THE THEORY OF EVOLUTION.

The century which has just elapsed has perhaps been more prolific in changes affecting our material and mental surroundings than any since the commencement of our era. At its commencement, means of travel were not much better than they had been ever since the Roman Empire. It is quite possible that on the ancient Roman roads vehicles were driven at ten miles an hour—the speed attained by the stage coach. Sailing vessels were no doubt vastly improved from the time when Columbus crossed the ocean in three small vessels of a few hundred tons burthen, yet the speed was little increased. The telegraph, to say nothing of the telephone, was as yet unborn. Manufactures of all kinds were still carried on with exceedingly primitive methods. Chemistry was in its infancy; geology had just drawn breath; biology was still in the womb of the future. The relation of man to the universe was, in the opinion of most, determined by a tradition, which was a curious mixture of Hebrew folk-lore and Christian teaching. In a word, although political changes of great moment had occurred, and were then in progress, there had been practically no radical change whatever, either in men's ideas or in their power over nature, since the time of the Reformation.

How different is the aspect of affairs at the close of the century! Means of communication have been improved until the whole civilized world is more accessible than was Canada at the beginning of the century. The railway, steamship, telegraph and telephone have combined to annihilate distance. Through the use of steam and electrical power, manufactures have increased to such an extent that an

immense industrial population has been created, and social problems unknown to our fathers have sprung into existence, and loudly call for solution. But the changes which have taken place in man's material environment have been insignificant in comparison with those which have taken place in his ideas of his relation to the universe. It is true that some considerable time before the commencement of the century man had learnt that the stars had not been created for the sole purpose of giving light by night, and that the earth was not the centre around which the whole visible universe moved. But he still regarded the existing state of things as the results of the workings of an anthropomorphic Divine architect who had at stated intervals interrupted an orderly course of nature in order to make innovations. At the beginning of the century animals were still divided into groups according to their resemblance to certain archetypal ideas supposed to be present to the mind of the Almighty when he created them. The theory of evolution, which is now universally accepted by thinking men, has completely altered our ideas in this respect. We have come to regard the present condition of the world as a gradual development from its condition in past time through the operation of orderly laws. Above all, we have learnt that man himself does not stand apart from the rest of living things as a separate creation, but has had a common origin with them and is governed by the same laws. Hence a different point of view has been adopted with regard to all products of human activity. Like man himself they must have undergone gradual development,—in a word, evolution.

Social laws are now no longer believed to have originated in an agreement between independent individuals—that famous theoretical idea, the *social contract*, which sprang from the fertile brain of Jean Jacques Rousseau. Customs, laws and religious ceremonies, have all gradually grown up from simple beginnings. Let anybody contrast the works of John Stuart Mill and those of Sir Henry Maine, both dealing with legal customs, in order to appreciate the difference between the older and the newer point of view. In the first we have the thinly veiled social contract; in the second there is the frank application of the principle of evolution to explain the facts.

Dr. Gardner, in a recent book on the New Testament, frankly admits the great influence which the theory of evolution has had on historical studies and the method of interpreting history. There are, he says,

“three ways of thought which have passed from physical into historical studies. These are, first, criticism of authorities; second, reverence for observed fact; third, acceptance of evolution.”

If, then, the doctrine of evolution has had such a profound influence on human thought, certain questions regarding it will appear to be of supreme importance to every thinking person. These are, first, what precisely is affirmed by the doctrine; secondly, on what kind of evidence it is based; and, thirdly, what it has to tell us regarding the origin and history of the human race.

In the space at my disposal, I can only attempt to answer fully the first question, but I shall sketch an answer to the second and third complete enough, I hope, to stimulate further reading and enquiry on these subjects.

The evolutionary theory first made its way in the region of geology. Confronted by the spectacle of rocks which were once beds of sand, mud and gravel, and still contained marine shells, upheaved to the height of thousands of feet above the sea, removed hundreds of miles from the coast, in many cases folded and split, geologists at first invoked the help of miraculous cataclysms—a series of deluges of Noah, alternating with fearful outbursts of internal fire, in order to explain the facts before them. Gradually, however, by attentive study of the work of natural agencies—the rivers, the breakers of the sea, waterfalls, rain and frost, earthquakes and volcanic eruptions—they became convinced that these agencies were sufficient to explain all the changes which the rocks had undergone, provided only that time enough were granted for their operation.

Sir Charles Lyell, the English geologist, was the man who above all others fought for and established this point of view. The late Principal of McGill, Sir William Dawson, whose name must be mentioned with respect by every Canadian, referring to Lyell's work, states, “the employment of present causes to explain past changes is the stable foundation of modern geology.” It would be impossible to state more succinctly the evolutionary point of view. Those who knew and revered Sir William Dawson, can only regret that he was led, by his devotion to what he conceived to be the cause of religious truth, to restrict evolution to the forms of inanimate matter, and to deny its applicability to living things. Those who are foremost in attributing order and law to the Supreme Cause of all things would naturally have

expected uniformity of method and aim to show itself throughout the whole of His work.

The biological doctrine of evolution, then, seeks to explain the manner in which the world of animals and plants reached its present condition by observing the changes which are now going on in it, and trying to calculate what would have been their effect had their action been indefinitely prolonged.

The utilization only of agencies now in operation is the characteristic note of the modern theory of evolution, and one which sharply distinguishes it from all the older ones. For, indeed, the idea of the evolution of animals, that is to say, the gradual development of different species from common ancestors is no new one. It first arose, like so many of our ideas, in the fertile minds of the Greeks, and was a favourite speculation with many of the more imaginative naturalists long before the time of Darwin. Nor can this be wondered at, for any close study of the animal kingdom drives in on one the conviction that the bodies of different species have a relation to one another which could be expressed by saying that the one looks like an improvement on, or modification of, the other. Let us take a very simple and familiar example, namely the Dog and the Cat. If we compare the skulls of these animals, we see that in both the teeth have the same general arrangement. In the Dog, for example, we find in front the small incisors or biting teeth, next come the great canines or eye-teeth, with which the animal seizes and kills its prey, then some teeth with sharp trifold edges, by which the flesh of the prey is cut into small pieces, the last of these being a very large tooth which bites like one blade of a pair of scissors against the corresponding tooth in the other jaw. These two teeth are called the carnassials, and by them no doubt the main part of the work of chewing is done. Behind them come a few broad crushing teeth similar to our own back teeth. Now, if we look at the skull of the Cat, we find that we have the same kinds of teeth; but the effective elements are strengthened and the comparatively ineffective diminished. Thus the nearly useless front teeth are much diminished in size, whilst the eye-teeth are proportionately larger than in the Dog. Of the teeth with trifold edges few remain and those small and feeble, but the carnassial is greatly enlarged, whilst the broad crushing teeth are represented by a minute vestige. Thus we see that the Cat's skull looks as if it were made out of the skull of the Dog by enlarging some

parts and suppressing others in order to fit it for the purposes of a purely flesh diet. In the skull of the extinct Sabre-toothed Tiger we find the same principle carried still further—here the upper eye-teeth were prolonged into veritable swords, while the lower remained small, the whole offensive force of the animal being concentrated on these two teeth.

The skulls of these animals are only one instance of the kind of relationship with respect to structure which exists between whole groups of animals, and hence it need not surprise us that already five hundred years before Christ, Heraclitus had put forward the idea that the higher animals were descended from the lower, and that Empedocles had even so far anticipated Darwin as to imagine that the development had proceeded in consequence of a struggle in which the better equipped survived. The Greeks, however, devoted themselves mainly to metaphysical studies, so that the observations made in the field of biology by some of their leading thinkers were not followed up with vigour, and with the decay of the Greek civilization and the setting in of the night of the Middle Ages, all scientific work ceased.

When the interest in natural history began to revive about the middle of the eighteenth century, it was not long before speculative thinkers in Germany and France began to put forward ideas as to the possible descent of one group of animals from another. Of these the most celebrated was the brilliant Frenchman, Lamarck. His idea was that animals developed new organs in response to the efforts which they made to accommodate themselves to new conditions. For example, if a bird were to seek to follow its prey into the water, in its endeavour to swim it would necessarily stretch the skin between its toes, and the expansion so gained would be transmitted to its offspring and so, gradually, a webbed foot would be developed. This theory which assumes that the improvement or enlargement of an organ by use or habit can be transmitted from parent to offspring, is known as the "inheritance of acquired characters," and it has exercised a great fascination over many minds up to the present day; but neither Lamarck nor any of his successors have been able to bring forward any proof of it. By the time, however, that Lamarck's theory was propounded the progress of physics and astronomy had taught men the necessity for experimental proof of the validity of the principles assumed in scientific theories, and the leaders in the science of comparative anatomy return-

ed always the same answer to Lamarck, Geoffroy St.Hilaire, and other advocates of the theory of "transformism," as it was then called. They declared that, "these theories of the derivation of one type of animal from another are very interesting, but they are not scientific, because our experience shows us that a horse always gives rise to a horse and never to anything else — nor do we know of any process going on in the world, as we know it at present, by which one type of animal could be transformed into another." Van Baer, who was the founder of that most interesting branch of biology, known as embryology, or the study of the development of the individual from the egg to the adult condition, satirized Lamarck's view as follows :—

"A fish, swimming to the bank, desires to take a walk on dry ground. What more natural than that in its efforts to progress, it should develop its fins into legs? Exposed to the air its gills shrivel up, and no doubt in a generation or two it would succeed in developing lungs, with this disadvantage that the intervening generations would have to do without breathing at all."

This, then, was the position of affairs when Charles Darwin produced his book on the Origin of Species. Whilst before that time not one scientific man had been in favour of the theory of evolution, twenty years after not one would be found in opposition to it. Let us, then, seek to obtain a clear idea as to the nature of the arguments adduced in that famous book which so profoundly altered the opinions of scientific men. They may be summed up in this:—Darwin showed that there were causes active in the world at the present time which would in time modify the characters of species. The moment this was proved evolution became a justifiable scientific theory.

Darwin commenced by calling attention to the fact that immensely more young are born than can possibly survive, both in the case of animals and plants. The reader is no doubt acquainted with the plant-louse or green-fly, as it is called, which proves such a pest to gardeners. It has been calculated that if a single male Aphis were to live to become a great-grandfather his family would be more numerous than is the entire human race. A single pair of partridges would in thirty years give rise to a number of partridges which, if none were to die and all were to produce the normal brood, would be so numerous that, packed side by side, they would cover the

entire earth, including the sea, and even then many would remain over. A single sea-urchin in a season produces twenty millions of eggs, a codfish nine millions. Now, since with few exceptions the average number of individuals in a species remains constant from year to year, of all the broods of young produced by a single pair of parents during their lives, on an average only two survive. The rest perish, either through failure to obtain food or through falling a prey to enemies. Hence there must ensue what Darwin called a struggle for existence amongst the members of every new generation of every species, and if there are any differences amongst them, those most suited to the conditions under which they live will survive. This is what Darwin called the survival of the fittest, and it will go on in each generation, and it may be metaphorically expressed by saying that Nature chooses those which are to survive.

But the question instantly arises:—"Are there such differences between the members of a species, and are they capable of being inherited by the offspring?" The experience of all those engaged in stock-raising gives the answer "Yes" to this question. Such differences—the cause of which is quite unknown to us—are always making their appearance, and in many cases are handed on to the offspring. In fact, when the matter is closely enquired into, it is found that no two members of the same brood are exactly alike any more than are any two brothers in the same human family. Stock-raisers, by constantly selecting for breeding purposes those individuals possessing the qualities which they wish to perpetuate, have gradually succeeded in utterly changing the characters of domestic animals, gaining in each generation specimens with more of the quality which they desired. In this way, out of the rock pigeon the extraordinary pouter pigeon, with its enormous crop, has been developed, the fan-tail, which has a tail with many more feathers in it than any species of wild bird, and a host of other peculiar breeds. What man tries to do to suit his convenience or his fancy, Nature is for ever doing, in order to fit animals and plants to the world they live in, and this is what is called Natural Selection. Under ordinary conditions the effect of Natural Selection is to weed out all abnormalities, all the weak and also all those that deviate in any marked degree from the normal characters of the species, for these characters are adapted to the normal surroundings of the animals. But should these surroundings change, either in

consequence of the climate slowly changing, or by the emigration of colonies of the species into new regions, then in many cases individuals which deviate from the normal type will have a better chance. For instance, in England the hare is of a dull brown color which harmonizes admirably with the surroundings of dead leaves in the autumn, when it is most exposed. If lighter-haired individuals were to be born, as occasionally happens, they would be weeded out through being discovered by their enemies owing to their conspicuousness against a background. But in Northern Canada, into which we believe the hare to have migrated at a remote time, the snow-covered ground during the long winter would render a brown hare a conspicuous mark. Hence the lightest-haired individuals would have the best chance, and by the constant selection of the lightest-haired in each generation the white winter coat of the Canadian hare would be evolved.

Such is, in briefest outline, Darwin's famous theory, and it commanded from the first the assent of some of the leading naturalists of the day, because of the natural and easy explanation it gave of a number of puzzling facts. The likenesses of animals to each other were explained by it as expressions of nearer or more remote cousinship. Each organ which an animal possessed had been developed on account of its utility to its possessor and on that account solely—and a rudimentary organ was not, as the naturalist Owen had supposed, due to a determination on the part of the Creator to construct things on a definite plan, but to the fact that it was no longer useful and was in course of disappearance. In this way the wisdom-tooth of Man and the little toe on the foot were explained. But still more interesting was the explanation which it suggested of the extraordinary phenomenon that the young of many of the higher animals present a resemblance to those below them in the scale of existence. I will mention a few examples of this, which, to me, is the most interesting phenomenon in Zoology.

The most familiar case known is that of the Frog. This animal starts life as a fish, provided with peculiar feathery appendages round its throat; later these gills become covered by a fold of skin forming a gill-cover. Still later, limbs develop as rod-like outgrowths, eventually showing a division into toes. The arms are at first concealed beneath the gill-fold but eventually break through, and the animal leaves the water as a tailed creature. Now the interesting point is

that these stages in the Frog's development show striking similarity to the fully grown stages of some of the lower animals. The Lung-fish have rod-like limbs, and gills concealed by a gill-cover, and a fringe-like tail-fin similar to that of the tadpole. Like the older tadpoles, also, they possess lungs. The Newt has four well-developed limbs, of which the hinder are the longer. Its gills have disappeared, but it retains throughout life the long tail, and so it recalls the condition in which the tadpole leaves the water.

Then, again, let us take the Sea-urchin. It belongs to a class of animals which differ radically from most in not having the organs arranged in pairs, one on the right and the other on the left side, but in presenting them in a circular series ranged like spokes of a wheel round a common centre. When this animal is young, however, it is like most other animals in having all its parts arranged in pairs, and the radial arrangement of the adult only gradually makes its appearance, commencing as a star-shaped figure on the left side, and gradually invading the whole organization of the animal. Now the explanation of these facts on the Darwinian theory was comparatively simple. The immature stages of animals are supposed to represent the past history of the race to which the animal belongs. When a new structure has arisen, it is because it was developed and preserved to meet the need of a new habit; and these structures as a general rule made their appearance at a late period in life when the new habits were assumed. Thus the frog is descended from fish-like ancestors, and hence it still commences its existence as a fish, and so on. The sea-urchin was originally a symmetrical, two-sided swimming animal, and later took to a crawling life on the bottom.

But many cases occur where it would be practically impossible for the young one to take up the former habits of the race. There are allies of the Frog and Newts which spend their time burrowing in the ground, and which lay their eggs there. If the young were born with feathery external gills they would perish. But they are not *born* with them. They acquire them just like the young of Frogs and Newts, for formerly, like tadpoles, they lived in water, but they remain within the protection of the eggshell till the gills have completely disappeared. This kind of development where the period of life during which the old habits used to be exercised is passed within the protection of an eggshell or the body of the parent, is called embryonic, and

it is the rule with the young of most of the animals which are most familiar to us. If we open an egg of the familiar hen, which has been incubated for three days, we discover the embryo chick resting on a mass of food material. It is exceedingly fish-like in form, and in its throat there are a series of clefts, exactly resembling the gill-clefts in a shark. The muscles are arranged in segments, just like the flesh of a fish; the heart and blood-vessels likewise recall those of a fish, and, in fact, the chick passes through a fishlike stage in the egg.

The theory of evolution met with a storm of opposition when it was first published. Putting aside a crowd of irrelevant objections, based on prejudice, three objections were urged by scientific men at the time, and caused Darwin a good deal of perplexity.

First, species of animals, even when closely resembling one another in visible qualities, are often, if not always, separated from each other by a difference of constitution which precludes their breeding together and having healthy offspring, whilst the breeds of animals which man has produced by artificial selection always remain mutually fertile. Everyone knows that a horse and an ass will produce a mule, but the mule is sterile, whereas the most varied strains of dogs can be crossed and produce perfect mongrels. No cause at present in existence has been clearly shown capable of producing this difference in constitution.

Secondly, the evidence of geology was held to be fatal to the theory, for not only were the earliest known fossils those of animals comparatively high in the scale compared to the simplest animals at present living, but little evidence of the gradual transition from fossil types to recent animals could be seen.

Thirdly, it was not clear how organs could have been useful at an early stage of their development, when they were rudiments, and hence it was not easy to see how they could have been developed by natural selection.

Darwin tried to meet all three difficulties. Regarding the first objection, he pointed out that the sterility between allied species is subject to great variation, and that sterility sometimes occurs between members of the same species, as, for instance, is the case with the English primrose. This beautiful flower, which in the old country is regarded as the harbinger of spring, exists in two varieties, one with long stamens and short pistil, and the other with short stamens and

a long pistil. If the pollen from the short stamens be conveyed to the short pistil or that from the long stamens to the long pistil, fertile seed will result, and this is what the bee in visiting the flowers naturally effects; but if pollen from the short stamens be put on the long pistil, no seed will be set. If, then, such variation in fertility can exist within the same species, argues Darwin, it may gradually have been developed by selection, for varieties which did not breed with one another would keep their peculiarities truer than those which did.

With regard to the geological difficulty, Darwin pointed out that the preservation of any animal as a fossil was due to a series of lucky chances. First, the remains of the animal must have been embedded in the sediment before it had decayed; secondly, this sediment must be converted into rock and upheaved so as to come within reach of a trained observer; and then the observer must search just in the right place. Darwin held that of the book of life we had only the last volume, and of most of the chapters only a few lines.

With regard to the last objection, Darwin points out that organs are not developed from useless rudiments, but from simpler pre-existing organs, which served a simpler purpose, and in the last resort out of the fundamental peculiarities of protoplasm. Thus an eye in the beginning owed its origin to the fact that some sensitiveness to light is inherent in all living substance, as can be seen in the way in which an earthworm, which is innocent of eyes, disappears into its burrow when light is flashed on it.

Forty years have passed away since the publication of "The Origin of Species," and in the intervening time the labours of biologists have triumphantly vindicated Darwin's answers to the objections raised, so that the theory of Natural Selection is the only one which at present holds the field in the minds of scientific men. Let us take the three main difficulties in order.

First and foremost the distinction between species and races, based on the supposed fact that members of two different species are sterile when crossed, whilst members of two races when crossed produce perfect and healthy offspring. Renewed researches have shown that it is utterly impossible to draw any line between the two cases—that there is a fine gradation between them. Thus there are two varieties of a certain Swiss butterfly known. One, a light coloured kind, inhabits the valleys; the other, a darker variety, those beautiful upland

meadows, the "Alps" in the strict sense. When the naturalist goes up the valley, however, he does not find that the one variety passes into the other; there is, on the contrary, a place found where the two varieties fly side by side. They will cross, but the offspring take after the father or the mother, and are not at all intermediate in character. Then we can go one step further—the common edible frog of Europe, *Rana esculenta*, is a remarkably variable animal. It is generally coloured somewhat like our own grass frog, but so distinct are the varieties that they have by many naturalists been classed as species. Nevertheless, Boulenger, of the British Museum, holds that these varieties are mere local races, for he has been able to find intermediate forms between all of them. Now it happens that in Austria and Poland, the territory of two very distinct varieties, the Italian and the German, overlap, and yet they do not breed together, but remain distinct like two species. Fertility is therefore a matter of constitution. As races become more and more distinct from one another, fertility becomes less and less. This objection, therefore, to Darwin's theory may be considered as finally answered.

The geological difficulty has been equally satisfactorily disposed of. It has been shown in the most conclusive manner—and that largely by the aid of our own Canadian Survey—that the oldest rocks which contain fossils are of quite recent origin compared with the rocks of the Labrador plateau, which formed the original core of North America. This plateau constitutes what our American scientists call a pene-plain. That is to say that it is worn down almost as far as it is possible for rivers, rain and frost to effect destruction. No hill, except in the East, where there are gorges running to the sea, is more than about five hundred feet above the valley. The rock is partly of volcanic origin, and partly of intensely heated, crushed and folded sediments, which lie round the edges of the plateau, and are so much altered that they are practically indistinguishable from volcanic rocks. Now, against this plateau, the oldest fossiliferous rocks abut with such an even, undisturbed outline that one could almost fancy they were a beach which had been left bare by the recession of the tide. In some places, even, their sandy beds show marks of ripples—like those one can see impressed on the bottom of pools on a sandy coast. But till recently it was supposed that the plateau had been moulded into its present form by the action of the great ice-sheet which about fifty thousand years ago covered the whole

of Canada. This, however, is not so. Where by natural cleft or artificial excavation one can see where the fossiliferous rocks rest on the plateau rocks, it is observed that the latter are just as much worn down beneath these sediments as they are in the exposed portion. Try to imagine the time that must have elapsed since the ancient Laurentian sediments accumulated. They were hardened into rock, raised thousands of feet above the sea-level, crushed and folded till they lost all trace of their original structure. Then they were exposed for countless ages to the action of rain and frost till the hard crystalline material was worn into valleys, which even now in Eastern Labrador may be two thousand feet deep, and then, and then only, did the sediments which contain the oldest known fossils, commence to be laid down.

Secondly, as the earth has been more and more thoroughly searched some instances are found where fossil animals show transitions from one type to another in the most marvellous way. A quarry in Solenhofen, in Bavaria, which is worked for the fine-grained stone used in lithography, and from which large quantities of material are taken every year, has yielded as by mere chance, the skeleton of a most remarkable bird which has been called *Archaeopteryx*. This creature, in many respects, was like a reptile. Thus its wing, although provided with strong feathers, has three fingers provided with claws; the jaws have teeth and the tail is long and lizard-like. Then, again, the American geologists in examining the sediments which were deposited in a huge lake once existing in the Western States, of which the Salt Lake is a last remnant, have found a series of forms leading from an animal the size of a fox, with five fingers and five toes, to the present horse. In fact, as the rocks are more and more searched, more and more of these cases come to light. So the geological confirmation of Darwin's theory grows stronger year by year.

Lastly, all biologists are now agreed that no organ has ever passed through the stage of being an useless rudiment. By the study of the anatomy of living animals and their development from the egg, a satisfactory history of the most complicated organs has been traced out, and in every case they were useful at every stage of development. The eye, the most complex of all, has been shown to have been originally part of the wall of the brain-cavity, and it is so still in a lowly marine animal. The brain itself is proved to have been nothing more

than a patch of extra sensitive skin turned inwards so as to form a furrow on the back, which then became converted into a canal.

Indeed, biologists regard the truth of the evolution theory as so well established as to be no longer worthy of serious discussion, and they are now occupying themselves with the further question as to what is the cause of the variations on which natural selection works. This is perhaps the most difficult question in biology, whose complete solution cannot be expected for many years yet. And yet it is of transcendent practical as well as theoretical importance. For the difference between the clever man and the dull man is of precisely the same kind as the difference between two puppies of the same litter.

Now there have been two theories put forward to account for these variations; one that they are due to the effect of habits contracted by the parent and transmitted to the offspring, and the other that they are due to the shaking up of the germ in the first period of its existence. The first theory is, of course, the theory of Lamarck, and if it could be shown experimentally that such transmission of the effects of habits were possible, it would afford an attractive explanation of many biological facts. We could in this way explain the abnormally large hands of the mole as being due to their constant exercise in burrowing in the earth, the powerful claws of the eagle through their exercise in grasping their prey, and so on through many instances. But this theory, which, as I mentioned before, has exercised a great fascination over many minds, labours under great difficulties.

In the first case it is impossible, from what we know of the structure of the germ to form any conception of how such a transmission could take place. The germ commences its existence as a formless mass, and how any slight alteration in the size of one of the organs of the adult body could so affect the germ that—when it developed—the corresponding organ in the child would show the same change, completely passes one's comprehension.

In the second place, there are many biological facts which are totally incapable of explanation on Lamarck's hypothesis. Take, for instance, that remarkable group of insects wrongly called White-ants, which work such devastation on timbers and all articles made of wood in the tropics. These animals, really allied to the cockroaches and locusts, live in colonies, and exhibit a wonderful social system. There are found at least four types of individuals amongst them, namely, males

and females (the so-called kings and queens), workers and soldiers. The necessity for these last is due to the fact that the white ants are delicate, soft-bodied insects, which would form juicy morsels for their rapacious enemies, the true ants, did they not possess protectors. The white ants shun the daylight, and live in tunnels which they excavate in the material they are devouring. When a marauding company of ants approaches the opening of a burrow inhabited by white ants the workers flee and the soldiers rush to the front. These latter are provided with enlarged heads and enormous jaws, and by scythe-like sweeps of these powerful weapons they lay low the hosts of the adversary. Now the soldiers never produce any young; they are completely sterile, consequently none of their peculiarities could possibly have been the result of habit transmitted from generation to generation.

On the other hand, all biologists are agreed that the structure of the adult is the outcome of the chemical constitution of the germ, and if this is altered in any way by a difference in the chemistry of the blood of the mother or by a hundred and one influences of this pervasive kind, the resulting animal will be altered. Nothing is more remarkable than the way in which the developing egg of a sea-urchin, for example, can be crushed and squeezed into all sorts of shapes, and yet give rise eventually to a perfectly normal animal. It may even be divided into eight pieces and each will give rise to a normal animal. On the other hand, if the constitution of the sea-water in which it is living be slightly altered the resulting animal is profoundly altered. And in this way we can understand why the children of drunkards suffer for the excesses of their parents.

All are aware of the ravages caused by that dreadful disease consumption, and of the fact that some people are completely proof against the attacks of the disease, whilst others readily succumb. That the difference between these two classes of people is due to a chemical difference in their whole constitution is shown by the marks of the consumptive tendency. These are not by any means always to be discerned from the formation of the chest. They are seen in the curved shape of the finger nails and in the texture of the hair and in a hundred little trifling peculiarities, the only possible explanation of which is that they are signs of a different quality in the germ.

The upshot, then, of the investigations which have so far been made of the causes of variation, leads to the result that by education we may

develop natural capacity but never create it, and that if the fundamental qualities of the human race are to be improved, the diseased and the vicious must be prevented from contributing to posterity.

I have left myself but little space to refer to the light which evolution has thrown on the origin of the human race. Darwin argued strongly that man must have sprung from an ancestor common to him and the apes, and so far as bodily structure is concerned there is much less difference between him and the Gorilla, for example, than between the Gorilla and one of the Lemurs or half-apes, of Madagascar. This conclusion has been very greatly strengthened by discoveries which have been made since Darwin's time. It has been shown that the human infant during the embryonic period of its existence possesses a tail and a thick covering of hair like that of an ape; but the tail is absorbed and the hair lost before birth. Secondly, the oldest remains of men which have been discovered have skulls which in size are exactly intermediate between that of a negro and that of a chimpanzee, and the shape of their thigh bones shows that they did not walk quite upright. Then it has been shown that a baby's first efforts in walking are strikingly similar to the normal gait of certain of the higher apes. A baby if unencumbered with clothes frequently totters along on its feet with its arms stretched straight downwards and resting on its knuckles—and this is the way the gorilla and the Orang-utan progress. When a baby has, however, learned to walk it will often run up and down holding out its arms to act as balancing-poles, and it is just this way that the long-armed Gibbon runs about.

But the most interesting advances which have been made in recent years on this question have been with regard to the history of man and human institutions since he became man. I shall in a few words try to outline this history. The most primitive type of man at present existing is the Negro, who, like the Apes most nearly allied to Man, is essentially a tropical animal, and does not flourish in cold countries. In all respects in which the negro departs from the type of the white man—in his smaller brain, thicker skull, protruding jaw, woolly hair, and feeble ankle—he approaches the ape. Therefore, it is clear that man was evolved in the tropics and that the first kind of men were negroes. The negro, left to himself, has never developed anything which could be called civilization; the highest form of society he reached was the tribe, and the form of religion is what is

called totemism—a worship of the spirits of ancestors supposed to be incarnate in animals, trees and even stones.

Now the way in which man has obtained dominion over the earth is not by his natural strength—for in this he is greatly surpassed even by the larger apes—but by his power of combining into societies and undertaking enterprises for the benefit of all the members of the society. Hence the degree of development of social institutions is just as surely the mark of the most highly developed men as the most highly developed limb is in the case of the herbivorous animal, or the largest canine tooth in the case of the carnivorous animal. When we trace back the social institutions of the more civilized nations, we find that they originate always in the tribe, and beneath the later developments of the great historic religions there is a core to be detected of primitive ancestor worship. So that in spiritual as well as bodily structure the negro is the most primitive type. As the negro race, however, spread, it gradually reached the temperate regions, and here the struggle with Nature became fiercer and the whole civilization underwent development and a higher type of man—the yellow or Mongolian race was evolved. This race spread all over the temperate regions of the globe. One branch of it constituted the Red Indians, who formed the primitive population of this continent, in which no negroes were found before the advent of Europeans. Some divisions of this race, like the Peruvians, attained a considerable level of culture—others remained in almost as primitive a tribal condition as the negroes. Other branches of the same race constituted the Chinese and the Japanese, the original Turks whose home was on the Steppes of Asia, and the Gnomes and Fairies. These “little people,” tales of whose magic used to delight our infancy, were a real race, which inhabited Britain and Northern Europe in pre-historic times—and the fairy tales are the legends of the struggle which took place between them and their invaders, whose descendants we are. As the yellow race spread still further towards the North—or as some people think, the cold North in the great Ice age, came down nearer to them,—the struggle for the necessities of life, the need for bravery, endurance, and all the manly virtues, reached its climax, and the highest type of man was evolved—the Nordic type or white man, whose original home was on the fringe of the ice-sheet, whose retreat he followed, living as has been plausibly suggested on the herds of reindeer. The white race established itself

in Scandinavia and Russia; but it soon increased so as to overflow its boundaries and we may say that most of human history is but the record of a series of southern raids carried out by colonies of the white race. One of the oldest of these raids was that of the Achaeans—the Greeks who besieged Troy. These Achaeans subjugated a dark-haired people which inhabited the shores of the Mediterranean, and largely intermarried with them, and partly due to this fact and partly owing to the enervating influence of the warmer climate their original qualities were largely lost. Yet even the dark-haired Greeks of historic times remembered their yellow-haired Scandinavian forefathers. Their gods, their glorified and idealized ancestors, had yellow locks. Later raids gave rise to the Romans, still later to the barbarian Goths and Germans, who overran the Roman Empire. The Celts of Britain were a mixed race—there was an early Nordic invasion which had blended with the stock of the “Fairies” or yellow men. To this day the small dark Highlander and the Welshman retain in considerable purity the physical characters of their Mongol forefathers. The latest raids of the Nordic race comprised the Danish and Norman invasions of England, for the Normans were not French—to this day a Norwegian calls himself a Norman.

Such is in baldest outline the history of the human race as determined by zoological methods. From it we may draw several comforting conclusions as to the future of Canada. We have seen, first, that the conquering type of man is the Nordic—or as we are accustomed to call it, the Anglo-Saxon type—but we must remember that our French-speaking fellow-countrymen, so far as they are of Norman descent, belong to the same race. Secondly, we have seen that this Nordic man is essentially an arctic animal and only flourishes in a cold climate—whilst in a warmer region he gradually loses virility and vitality. So that from a zoological point of view the outlook is bright for Canada. The only drawback is that from earliest times these Northmen have been wont to migrate south and subjugate inferior people—and when we to-day lament the migration of young Canada to the States, we must reflect that this is only an instance of a tendency that has been developed for thousands of years.

It would be cowardly and dishonest if, before closing, I did not say a word or two on the objections which religious people have felt to the evolution doctrine on account of the conclusions to which it seems to lead.

By religion is meant the relation of the soul to the great Reality in the Universe—the Spirit behind phenomena. This subject lies entirely outside zoology and is not touched by it. When we awaken into conscious life, we gradually learn to separate in our experience two factors—on the one hand, a personality which wills and thinks and suffers—on the other hand, an outside Nature, which we can sometimes bend to our wills, but which oftenest is intractable and limits and opposes us. This outside Nature is the object of scientific study. To our earliest forefathers it seemed capricious and governed by a multitude of inconstant and passionate wills, like those of savage man. These were the spirits of the earliest stage of religion. Increased study shows that law and order prevail in it, and the conclusion that behind Nature there is One—to whom in the sublime words of Dante will and power are one—is supported by science and in one form and another has forced itself on the deepest scientific thinkers. But if behind the objective part of our experience there is Reality, the same must be true of the subjective—and all attempts to resolve the soul into a concourse of atoms—which latter indeed are concepts of the very mind which some would seek to explain by them, will result in failure. These two points, God and the soul, will form the basis for all sound religious thinking. How the human soul comes into existence we do not know and as little do we know how it is related to the souls of animals. But what is the use of vexing ourselves about the latter point when we have not the remotest conception how and when the soul of the baby comes into existence?

On such subjects the only proper attitude is that of a wise and temperate agnosticism, and the whole subject could not be more fittingly summed up than in the words of that great Christian thinker of modern times—Harnack :

“We have to do with a dualism the origin of which we do not know, but as moral beings we are convinced that this dualism, given to us that we may conquer it and reduce it to unity, has sprung from a fundamental unity, and will ultimately be resolved into unity—the realization of the good . . . We see only in part for we cannot form a consistent logical scheme out of our knowledge of the things of space and time on the one hand, and of our inner life on the other. But in the peace of God which is higher than all reason we feel that they shall be reconciled.”

E. W. MACBRIDE.

THE MICROSCOPE OF TIME.

It happened once that long ago
Upon a sunny shore,
An aged, withered Troglodyte
Sat in his cavern's door,
While round him little Troglodytes
Lay on the sandy floor.

The bright waves broke upon the beach
Just as they break to-day,
The mammoths bellowed in the woods
Or wallowed in the bay,
The old man told them of his youth,
As only old men may.

“Long, long ago when I was young,
Then men were men indeed;
But modern luxury and tools
Work havoc on the breed;
A little hardship now and then
Is what you youngsters need.

“When I was even younger than
The youngest one of you,
A woolly-backed rhinoceros
I hunted down and slew;
You fear a Pterodactyl or
A clove-hoofed kangaroo.

“Yes, now the good old times are changed,
Would I might live again,
When even children dared to brave
The Aurochs in its fen,
When even women knew no fear,
And men were truly men !”

He paused and mused ; his thoughts sped back,
A century or more,
A little Troglodyte again
He lived the days of yore,
While those about him, slipping out,
Chased dodos on the shore.

The bright waves broke upon the beach,
Each with its edge of spray,
The sun, just setting in the West,
Shot gold across the bay ;
The old man magnified his youth,
As men still do to-day.

H. S. WILLIAMS.

IN THE WILDS OF SIBERIA.

Returned from a four years' residence in Western Australia to meet the London Directors of the Mining Companies for which I was acting as general manager, I found myself in temporary charge of the office of a fellow engineer, suddenly called away to California. With a cosy suite of offices and a well-trained staff the short city business day passed easily and pleasantly, and the change of work was refreshing after the long tiresome journeys of inspection made on camel back through the dreary Australian bush.

The fact that London is the centre of the world was brought home to me strongly by the nature of the work to be done in the office. In comes a tall, slight, grave gentleman, innocent of all mining knowledge, but anxious to make some money out of mines. A chance acquaintance had impressed him with the possibilities of a certain deposit of tungstate of iron in a remote corner of Arizona, and he wants an opinion about it. He is followed by a short, stout, deaf man, anxious to know what he can do with a low-grade copper proposition in the United States of Colombia. Following him a shifty-looking Russian wishes to be put in touch with the leading British iron factors. He has influence with the Russian Department of Railways, and is in a position to secure large contracts for heavy rails to relay the trans-Siberian road, still unfinished, but already too light for the rapidly increasing traffic. What he wants is English money, and lots of it. Little penetration is needed to see that he is not all that he represents himself to be, so no time is lost in disposing of him.

“Will you start to-morrow for Alaska, as I have to get a report on a gold mine, and cannot leave just now?” This from another engineer, who rushes in hurriedly just in time to take me to lunch. “Can’t do it, very sorry.”

As a set-off to the chilly possibilities of this trip attention is next directed to the West Coast of Africa. From here it turns to tin mines in Tasmania; and then to an application of the New Zealand method of gold dredging to the working of the large alluvial flats along the rivers in Siberia.

After this I left town for a month to look at sulphur mines in the north of Italy. Back again in the city I was asked if I could go to some large copper works in the Urals. Their affairs were not going well, and some one was wanted to take hold of things, and put them on a satisfactory footing. It was in the hands of a combination of German and Russian engineers who were not pulling together. They were directing operations in kid gloves it appeared, and while doing it “with an air” were not bringing to the work the enthusiasm needed to make things go. Here was an agreeable position suggestive of novel experiences in the way of sword and pistol duels. Visions of a return with sword cuts in my cheeks, and the wind whistling through bullet holes in my hide, floated lightly and brightly before me, and I reflected that a short course of instruction in the use of the gatling gun might be introduced into our mining course with advantage. However, it being impossible to leave London for a month, my skin remained whole, but at the loss of a very promising adventure. The time of my friend’s return was now approaching, so when a fussy little foreigner bustled in to ask me to visit Southern Siberia to inspect some copper mines in the foot-hills of the Altai Mountains, I decided to set my house in order and go. He came in the morning and wanted me to leave that night, but there was not time to get passports. While casting about among my friends for an assistant, a former chum of mine poked his head round the half-opened door. We had been together in Australia. “Do you know anything about copper-mines?” I asked. “More or less.” “Then clear out of this and pack your kit; I want you to go with me to Siberia to-morrow night.” “Right you are,” he said, and disappeared. We caught the night packet to Flushing, passed through Berlin and crossed the frontier at Alexandrovo. Locked behind iron gates with the varied assortment of travellers met with in that part of the world,

the green hand cannot fail to be impressed with the atmosphere of official control that pervades the whole life of this somewhat terrible, but wholly fascinating country. At last with passports "viséd" we were liberated and went our way to Warsaw to change there for Kief. It is popularly believed that a knowledge of French will enable the traveller in Russia to pass comfortably throughout the length and breadth of the land. Get through it he certainly can, but only with ingenuity and luck. Many times we stranded in apparently hopeless situations, but were always rescued by some obliging stranger who volunteered assistance. Once accustomed to the working of the official machine, and convinced that if he attends strictly to his own affairs he need not become entangled in it, the traveller finds much to amuse him.

The variety of nationalities met with is a constant source of interest. One's fellow travellers talk freely enough if they happen to speak French, and they are all interested in England and her affairs,—a natural interest in the great rival empire.

An hour's inspection of Warsaw leaves a mixed impression of motion, colour, dirt, and long-haired Poles that is difficult to analyse.

Having changed trains with the assistance of a Belgian, a start was made for Kief. This new friend and his wife accompanied us. The lady afforded us some amusement by constantly taking off and putting on her skirt as she wished to lie down or sit up, the apparent object being to prevent its bagging at the knees. The country passed through was much like our own good Canada, but we would not stable our horses in their villages. It was always a riddle to guess which was the house, which was the barn, and which was the stack of hay. Going east, matters improved until in Siberia we found the peasants well housed and clothed and fed. That they were well warmed we found to our cost later when sleeping in their steaming log houses.

At Kief we spent a week with the owner of the properties we had come to visit. Nothing could exceed his hospitality and kind attentions. St. Petersburg and Moscow are cosmopolitan cities, but Kief is a purely Russian centre. The city is bright with the glittering gilded domes of Greek churches, with their wonderfully ornate interiors—in strong contrast to the congregations of worshipping peasants clad in homespun. "They look very devout," said our host, "but put your purse in an inside pocket." The unaccompanied singing of the priests is glorious, and the ceremonial impressive.

At the theatre on Sunday night there was a splendid setting of an historical play, based on incidents in the reign of Ivan the Terrible. Formerly forbidden by the government, it was being put on for the first time, with permission, and no pains were spared to do it well. The students of the university graced the gallery and greeted the music of their favorite Glinka with tumultuous applause; reminding a McGill man of "Sports' Night" at home. The Slavie harmonies stir the Slavie heart. Spirited, but with an undercurrent of sadness, there is a sense of repression in the music, a suggestion of excitement barely under control, that may break out in a moment into fierce tumult if not held sternly in check. It is very striking.

If the exterior of the Russian home be somewhat grim, the interior is bright and lively. There is no merrier man than the Russian at his own table, when he toasts his guest and bids him welcome. The head of the house, cleverly balancing a cigarette between her two remaining front teeth, blew clouds of smoke about her merry round face while shaking with laughter at an account of our adventures on the road. A strong head is needed to stand the drinking of toasts in fiery vodka, and a strong constitution to stand the call made upon the appetite by Russian hospitality. The college dinners had prepared me for the strain, but my friend took to his bed before the week was out.

The mining engineer fares well in the hands of a Russian mine owner when he is going out to inspect his mines. Although his host is really hospitable, the excess of attention received is not the result of pure singleness of heart, and that there is an ulterior object will be made quite clear to the visitor before he is allowed to go.

Leaving Kief too late to catch the weekly express from Moscow, six days and nights were spent on an accommodation train to Omsk, in the care of our guide and interpreter Nicolai Nicolaiivitch Talkatchoff. Commonly addressed as "Nicolai Nicolai," we called him Nick, and found him answer to it quite nicely. Half Russian, half French, and wholly musician, Nick was a fourth year law student of the Kief University, with special leave of absence from the Principal, obtained at the instance of our host. An only son of doting parents with a double-barrelled French and Russian temperament, Nick was something of a spoilt boy, and a little trying at times. Added to this he had that sense of personal importance characteristic of fourth year students the world over. Nick was a great hunter, he

said, and displayed a rabbit and a stuffed partridge in proof of the statement. "Have no anxiety," he told us before leaving, "rely upon me and you will be safe." So we arranged to look after the money and little matters of that kind while leaving the Department of Defence in his hands. After a final burst of eating and drinking we departed, and lived for six days principally on caviare and cigarettes, while we taught Nick to smoke a pipe and sing "Alouette," and "John Brown's Body," two of our national songs which he found very interesting. As we approached the Siberian border our Department of Defence got out of order and began to be homesick. Its mother would be lonely, and it was the part of a loving son to sacrifice his own feelings and return to comfort her. When we actually reached the border Nick told us tales of travellers whose throats had been cut on the train by desperate convicts, and proposed that we should sit up at night and sleep in turns by day. "If we are to have our throats cut," we said, "we prefer to be asleep during the operation. We will not take any responsibility in the matter. We are in your hands, and we feel quite safe; we have not forgotten the rabbit and the partridge."

At Omsk we escaped from the train to drive six hundred miles across the Kirgiz Steppes. This was done in stages, with a change of horses every twenty miles. The country was very like our own prairie lands, but the vehicles were like nothing else than large wicker baskets on wheels, without springs and without seats, sometimes covered, often open, lined with hay and cow-hair mats. They are not smart to look at, but lying at full length and travelling at a gallop over the smooth clay roads in the clear cold air, one enjoys comparative comfort and some excitement, as one may confidently expect a wheel to come off and cause a little diversion once at least during the day.

Nick had an acute attack of homesickness in Omsk, but we had his return ticket and all the money, and took the precaution not to let him out of sight till well on the road. After driving for a day without meeting any convicts or being pursued by wolves, there being none in the district, his courage returned, and he added a crow to his trophies of the chase. With night fresh fears assailed him and the strange cries of the yemschicks (or drivers) struck terror to his heart, so we deposed him and took away his firearms to avoid accident.

Changing horses at a Siberian post-station in the dense darkness of

a rainy night is a peculiar experience. There are no lanterns, but merely candles placed inside a window to illuminate the confusion out of doors. The tired and the fresh horses are allowed to get mixed up together. The cows try to eat the hay out of your vehicle, while frightened geese and pigs scamper about in the mud between your feet as you superintend the transfer of the baggage. The Russian yemschick is as skilful as an American porter in destroying portman-teaus. If lucky, one square meal a day was procured, but generally shift was made with tea, black bread and caviare. Inexperience was perhaps accountable for part of the discomfort.

As a tarantass holds only two travellers two vehicles were required for our party of three. It appeared that very often only one tarantass and an open flat-topped waggon were available. Nick made himself snug in a corner of the tarantass, leaving us to take turns in the open air until at one of the change houses we decided that it might do him good to make a stage on the observation car. He at once took the ground that we were doing an injury to his lonely mother by exposing him on a flat-topped waggon to the cold and rain, and to the danger of catching cold. Nick was always ingenious in making use of his mother's feelings, but we were cold and hungry and hard of heart, until in self-defence he foraged about and secured a second tarantass. After that there were no more open carts.

At Pavlodar we crossed the river Irtisch into the land of the Kirgiz and left the Russian language behind. A quiet pastoral people in fact the Kirgiz are; in appearance, forbidding enough. They look like Mohawk-Chinese half-breeds dressed in sheepskins, with hoods of the same material covered with bright calico. Their fierce faces framed in fur were a fresh shock to poor Nick, but this only lasted a day and then we reached headquarters at the mines, and were transferred to the care of a Russian engineer. Nick was sent home with a man to look after him while we turned our attention to the six mines of the group we were to inspect.

Informed at Kief that they were all close together we found on arrival that the shortest interval between any two mines was one hundred and fifty miles. The first mine was of little value, the second of less, and the others of none at all. The richest ore contained half of one per cent of copper and the quantity was limited. Much of it was not copper ore at all, but serpentine and chloritic schist. Any

greenish rock was regarded as copper ore, as no tests had been made. A few small pits and some old inclined shafts constituted all the work done on the thirty-six square miles we had come to see.

In the heart of Siberia much trouble is avoided by not expressing all one's thoughts, so we dissembled. What were our impressions of the country, we were asked. It was undoubtedly a fine large country. What did we think of the mines? They were full of possibilities, and might contain untold wealth, but no definite opinion could be expressed until after the completion of our analyses on our return to London, and so on.

The engineer in charge suspected that all was not right, and we were plied with telegrams from Kief with veiled offers of bribes for a favourable report. All this was done skilfully and well, but the intention was perfectly clear. We fenced with the owner over the wires, and made the formal tour of inspection, driving night and day with an occasional halt of a few hours. We were off the coach roads now, and drove surrounded by a small cloud of Kirgiz horsemen with spare horses. Our food consisted of a stewed sheep chopped into blocks, and served to the party in a large wooden bowl, whence each man helped himself with his fingers to what pleased his fancy. When a sheep was purchased it was brought into the tent and exhibited. It was then removed and killed. The breast being cut off was brought in, wool and all, to be charred on the coals. With this we were expected to amuse ourselves while the rest of the animal was being boiled.

November had arrived and winter was closing in. The thermometer was registering zero and lower temperatures, so that we welcomed the short stops for meals in spite of the roughness of the repasts, and enjoyed stretching our cramped limbs on fur rugs about a fire of dung cakes in the centre of a circular tent consisting of a light frame covered with cow-hair mats. There was no lack of horse-flesh, but only a few of the half-wild ponies were broken to harness. This in no way bothered the Kirgiz drivers. A single steady horse in the shafts with a couple of shaggy wild ponies on either side, was regarded as an excellent team. As all their heads were tied together and to the shafts, no one could break away without taking the others with him. The vagaries of the ponies on the one side of the shafter were generally neutralized by similar vagaries of the ponies on the other side, so that a fair average stability resulted.

It sometimes happened that the whole team piled itself up in a snow drift, and a good deal of hair was pulled out of manes and tails, and some skin kicked off legs and sides before matters were righted. The part played by the traveller on these occasions is a simple one. He merely sits tight. The horses being attached some to the front and some to the back axle, may conceivably pull the vehicle to pieces, but they cannot upset it. If they run away so much the better, if only they are headed in the right direction. Only in a few places in the mountains would a runaway be a serious affair. We used over four hundred horses during a trip, and therefore speak with confidence.

The Kirgiz are a nomadic people and settle in villages only during the time when snow makes wandering impossible. Each family occupies a separate village. We saw many of these villages all of the same pattern and comprising not more than a dozen houses in each. The house consists of two or three small rooms six or seven feet high, surrounded by a wide lean-to. The roof is flat and covered with turf. It is used as a barn, and upon it is piled the winter store of fodder to keep it out of reach of the cattle. This answers for the cows and horses, but it is not an uncommon sight to see the domestic camel calmly eating the roof off his master's house. The family live in the central rooms while the cattle and sheep occupy the surrounding lean-to. Even the camels are folded up in some mysterious manner and introduced into the same shelter. By this ingenious arrangement the animal heat of the flocks and herds is used to warm the family. It has the further advantage that the head of the house is thus enabled to enjoy in very real manner a lively sense of his possessions.

Storm bound by a blizzard, we spent two days in one of these houses. We had two Russians with us, a Cossack from the Don, a Tartar from the Crimea and ten Kirgiz in the central rooms, while in the lean-to were two camels, six cows, and seventy sheep. The horses were left in the open. The foundation of the atmosphere was pungent smoke from a leaking brick oven. To this was superadded a mixture of Russian, Kirgiz, Tartar and Cossack odours with contributions from the other animals in the lean-to. It is a poor heart that never rejoices, so we reflected that at least we were warm, and in due receipt of chunks of stewed mutton at regular intervals, and therefore better off than if we had been caught by the blizzard away from shelter. Without books, we sat on the floor, there being no chairs, and extracted what

amusement we could from our neighbours. We made them sing their native songs, and sang, ourselves, in return. We taught them tricks and started various competitions, but none pleased them so well as making shadow pictures on the wall. During our two days' imprisonment we saw enough of Kirgiz home life to satisfy all our curiosity in this direction. A series of similar episodes varying only in unimportant details, made up the sum of our experience while making the round of the mines, and we welcomed the day when we started on the return journey to Omsk and the railway.

At Omsk we enjoyed the spectacle of a Russian winter fair, and made the acquaintance of the officers of the garrison. We caught the returning Moscow express, and made the journey to Kief with all the comfort of our own transcontinental trains. The owner of the mines was absent, but we were unwilling to await his return in spite of his wish to have us do so. It happened, however, that there was a difficulty about getting our passports "viséd" and the necessary permission to leave the country. These things happen in Russia. There was no apparent reason for the delay, and we had all the sympathy of our friends, while suspecting them of quietly blocking our departure before the return of our host. We could not go without permission, so made the best of circumstances, and exchanged courtesies with our entertainers. Christmas was approaching, and there were constant festivals in progress. These festivals are a serious matter for the guest, as he is expected to perform marvellous feats of eating and drinking.

On the feast of St. Nicholas we were entertained by the family of Talkatchoff, the saint being the patron of our friend Nick, who had been posing since his return as the hero of the most wonderful adventures. After the ordinary heavy dinner at half-past six we were taken to the festival at eight o'clock. Here we were expected to toy with cakes and sweetmeats until ten, when the serious business of the evening began. Twenty-two people sat round a table and ate and drank from that time until five o'clock the following morning almost without intermission. No songs were sung but innumerable toasts were drunk including of course our country and our sovereign and our own good selves, to all of which we replied in kind as best we could. The Anglo-Saxon has undoubtedly a right to consider himself a good trencher-man,

but he is not of the first class. The true Knights of the Board are found only in Russia.

One more day of discussion of the mines, during which we were careful to cloak our opinion, and we left for Berlin. On crossing the frontier there was a distinct sense of having regained freedom, and we put away our passports with a feeling of relief. At Berlin we joined a train almost completely filled with English men and women, all in high spirits, hastening home for Christmas.

After a fortnight of London fog I left gladly for the clear, bright Mediterranean to catch a steamer at Marseilles, *en route* for Australia.

Our report on the mines was satisfactory only to ourselves, in spite of inducements held out to make it otherwise. Let the mining engineer who goes mining in Russia walk circumspectly. His task is full of pitfalls, and many snares are laid for the feet of the unwary. He will, however, find it an interesting experience, and he will have an amusing time of it, unless he be a much more serious person than any of the engineers I have met.

C. B. KINGSTON.

“THOU WAST NOT BORN FOR DEATH.”

Eyes! were you made to turn
Life into gall?

Love! must thou cast a gloom
Over all?

Eyes, that awoke a soul
Not of earth,

Love, that spurned dust and claimed
Nobler birth.

Death! thou art conqueror,
Earth is thine own,

Beauty,—an epitaph
Carved in cold stone,

Love,—that alone had power
The form to win,—

Love, too, is dead, its end
And origin.

A CICERO MANUSCRIPT.

An article on Latin texts is not likely to increase the circulation of a popular magazine. To readers who confine themselves to the latest novels and the most recent advances in wireless telegraphy, ancient manuscripts seem things devised for the purpose of entertaining and baffling a select few who, living in the remote past, have cut themselves off from the questions of modern life. "A manuscript he pores on everlastingly"—so wrote a Fellow of Merton College, Oxford, early in the seventeenth century, when describing an antiquary—"especially," he goes on to say, "if the cover be all moth-eaten and the dust make a parenthesis between every syllable." Yet in many things, perhaps in most, we are the heirs of the wisdom of the ages. Nor is there just now any sign that the race of classical scholars is dwindling to extinction. Possibly, indeed, there are some moderns who like the character presumably sketched by John Earle, would give all the books they have "for six lines of Tully in his own hand." Their libraries, however, are quite safe.

Yet the discovery of the unique value of a long-neglected Cicero codex by a member of the University staff is an event that ought to be noticed in our pages. Accordingly I asked Principal Peterson to give me some facts about the origin, history and significance of the manuscript in question, which now belongs to Lord Leicester's library, at Holkham, in Norfolk. He has referred me to *Anecdota Oxoniensia—Classical Series, Part IX.*,—a small volume issued from the Clarendon Press, and containing his account of what must be regarded as one of

the most fortunate finds in recent times. To it I am indebted for the statements that bear directly on the manuscript itself.

The existence of the manuscript in Lord Leicester's library was made known to Principal Peterson by the distinguished Ciceronian scholar, Dr. J. S. Reid of Cambridge, England. From investigations subsequently begun in the Bodleian Library, Oxford, it was discovered that the Holkham library possesses three Cicero MSS. Application was then made to Lord Leicester for the loan of that manuscript which was understood to give the text of some portion of the Verrine Orations of which Principal Peterson is preparing a critical edition. It was granted and the manuscript sent to the British Museum to be consulted by the editor there. On examination it was found to be greatly mutilated and to have been cut down when rebound in the earlier part of the last century—so much so that the marginal notes had suffered. On the back a label gave its date as the fourteenth century (*Saec. XIV.*), while on an inner page some one had jotted down in pencil *Saec. XI.*, a better guess, but one that post-dates the manuscript by two centuries. The handwriting was perceived by experts to belong to the earlier part of the ninth century, and the form of its letters to display the style of the school of Tours. It may be added that the well-known revival of learning in the time of Karl the Great presents as one of its features great industry in the *scriptoria* or writing-rooms of the monasteries. The monastery of St. Martin, at Tours, was presided over from A.D. 796 to 804 by the Abbot Alcuin of York, an Englishman who, as every schoolboy knows, laid the foundation of the educational system of an ancient Francia. Tours, then, was the seat of great activity during the period of the revival of learning in the time of Karl the Great, and a new style of letters came to be formed there which goes by the name of the Caroline minuscule. Minuscules are small letters. They are derived from the earlier majuscules or large letters, which fall into two classes—capitals, in the formation of which curved lines are avoided, and uncials, in which curved lines are freely used. The manuscript in question is written in Caroline minuscules.

In palaeographical notes made by Mr. G. F. Warner, Assistant Keeper of MSS. in the British Museum, and printed in the editor's small volume, there is a reference to some indistinct letters standing at the top of the second column of the first page, which contains the beginning of the

first oration against Catiline. I give Mr. Warner's own words: "At the top of the first page is an effaced inscription, perhaps a library-mark or an owner's name which might perhaps be read with the help of a re-agent." Application had again to be made to Lord Leicester for permission to treat the manuscript with chemicals in order to bring out the inscription, in which Mr. Warner thought he could discern the words *de conventu*. The re-agent was applied by the librarian of the Bodleian, whither the manuscript had been transferred at the editor's request, and it brought out the words *de conventu Clun'*. The word *Clun'* was, however, not very legible, but the editor deciphered it as such to the rejection of *Dijon*, which had been proposed, thus making the library-mark read in its expanded form *de conventu Cluniacensi*. Apparently, then, the Holkham manuscript had once belonged to the library of the monastery of Cluny, famous for its strivings in the cause of ascetic reform at a time when monastic discipline had grown lax, and so becoming the most conspicuous centre of ecclesiastical life in Europe, with its "Congregation" or system of attached monasteries spreading all over the continent and its abbot more in evidence in the clerical world than the Pope himself. The next point was to establish the genuineness of the library-mark. Fortunately the editor remembered the old catalogue of the Cluny library, made at Cluny in the twelfth century and given in Delisle's interesting work, the *Histoire générale de Paris*. On referring to Delisle he found a description of what is now the Holkham manuscript.

The later history of the manuscript is by no means free from obscurity, but there seem grounds for supposing that it "shared the fate of many other MSS. known to have belonged to the famous Benedictine foundation before the outbreak of the religious wars." In the war of the Creeds, Cluny was sacked by the Huguenots in 1562. The Calvinist Beza, in his History, refers to the destruction of the library at Cluny. According to him the monks had fled from the town, which was taken without resistance. From what followed, its captors seem to have been in one of their destructive moods, for the library with its rich collection of ancient manuscripts was, he says, entirely destroyed. As to the books, they were either torn up or carried away in fragments. This act of his co-religionists provoked an indignant rebuke from Beza in the words, "ce thrésor-là fut perdu par l'insolence et l'ignorance de

gens de guerre disans que c'estoient tous livres de la messe." So much for another instance of misapplied Puritanical zeal! Proofs of the later existence of the Cluniac, now the Holkham, manuscript are soon visible. The jurist Cujas who possessed a library rich in manuscripts on Roman law, obtained access in some way or other to the Cluniac manuscript, as his emendations of faulty readings in the Catilinarian Orations, which are identical with the text of the Cluniac manuscript, show. But the chief scholar who applied himself to the reconstruction of the text of Cicero in the sixteenth century was Lambinus, whose readings in the second and third books of the Verrines point to the Cluniac manuscript. He received help from various scholars—among them Cujas and Fabricius, the latter of whom sent him a collation of that part of the Cluniac manuscript which contained the two books of the Verrines just mentioned. How Fabricius—who becomes much less impressive under his de-Latinized name of Smith (Schmidt)—came to know of its existence or where he made use of it, it is difficult to say. The manuscript, so the editor maintains, came into the possession of Ioannes Matalius Metellus (Jean Matal, 1520-1597)—whence the designation *Codex Metellianus*—and it might have been consulted by Fabricius when it belonged to Metellus. I prefer to give the editor's main contention in his own words: "It will be my endeavor now to establish the fact that the Holkham Codex is the *Codex Metellianus*, and therefore to draw certain interesting inferences as to its identity with the MS. on which F. Fabricius drew (*Codex Fabricianus*), for some of the variants which he supplied to Lambinus."

A curious fact deserves to be touched on. The superiority of the text of the second and third Verrines, as given in the MS. known to scholars as *Lagomarsinianus*, (*Lg. 42*),—a title derived from the name of the Jesuit Girolamo Lagomarsini—has been frequently acknowledged by modern German editors. They were at a loss to account for it. According to one explanation "the common archetype of all the good MSS. had been dismembered." In the opinion of the editor the portion of *Lg. 42* which has just been referred to, is simply an immediate copy of the Holkham manuscript, the importance of which comes to the front again.

The Holkham Codex consists of 39 leaves of vellum. It contains fragments of the Catiline Orations, of the Orations Pro Q. Ligario, Pro

Rege Deiotaro and the second Verrine. Its antiquity places it at the head of all existing MSS. of Cicero that cover the same ground. Although a fac-simile of one of its pages was published more than ten years ago by Chatelain in his *Paléographie des Classiques Latins*, the MS. has for generations lain unused by editors of Cicero. To the editor who has just brought it out of its hiding-place is due the determination of its unique rank.

CHAS. E. MOYSE.

MCGILL IN SOUTH AFRICA.

[The following classified list of McGill men who volunteered for service in South Africa has been prepared, at our request, by Mr. A. S. McCormick. Though great care has been taken to make it complete and accurate, there may be some omissions. If any such are discovered by our readers, we should be glad to have our attention called to the fact. Mr. McCormick's account of his own experience will also be found in this number of The McGill University Magazine.—Ed.]

So far as it is possible to ascertain, McGill University has been represented during the present South African War by forty-four men, of whom twenty-nine were Graduates, fifteen Undergraduates. Of this number twenty were from Medicine, seven were from Science, six from Arts, six from Comparative Medicine, two from Law, two from the University Staff, and one from Theology. Three have been killed and three wounded; but it is to be hoped there will be no more casualties among the representatives of Old McGill.

The following list gives in brackets the ranks held by the men at the date of their enrolment in the Special Service Force. In all 193 Canadians have been killed or died during the war.

FIRST REGIMENT CANADIAN MOUNTED RIFLES. (Second Contingent)

This Regiment consisted of four squadrons—seven hundred and fifty-one men—and sailed from Halifax, N.S., January, 1900. It saw much service in Cape Colony, Orange Free State, South African Republic, and

distinguished itself on many occasions, particularly at Belfast, Z.A.R. It returned direct to Canada, February, 1901, and was immediately disbanded. It lost thirty-five men killed. McGill men :—

Lieut. T. A. Wroughton, D.V.S. (Inspector N.W.M.P.), Comp. Med., 1890. C. Squadron.

Lieut. H. L. Borden. B Squadron. (Maj. King's Can. Hussars) Med. '01. Killed at Withpoort, Z.A.R., June, 16th., 1900. Had he lived Lieut. Borden was to have received the Victoria Cross for his bravery, particularly at Kroonstad, O.V.S. On this occasion, in company with Lieut. R. E. W. Turner, the brother of a McGill graduate, he swam the Walch River amid a fierce rifle fire. Lieut. Turner was awarded the V.C.

No. 3, Pte. A. W. Tracey, D.V.S. Comp. Med., 1893.

No. 157, Pte. W. Dougall, B.A. Sc. A Squadron. Science, 1895. Lost one eye from a splinter of a bursting shell.

No. 161, Pte. W. G. Bishop, B.A. A Squadron. Arts, 1898.

SECOND REGIMENT CANADIAN MOUNTED RIFLES.

(Fourth Contingent)

Six Squadrons—nine hundred and twenty-five men. Sailed from Halifax, January, 1902.

Hospital Sergt. J. K. Niven, M.D. Med., 1901.

Pte. T. A. Paterson. D Squadron. Arts, '05.

Pte. E. W. Pownall. D Squadron. Arts, '04.

STRATHCONA HORSE.

(Third Contingent)

Three squadrons—five hundred and twenty-nine men. Sailed from Halifax, March 17th., 1900. This regiment was equipped at the expense of the Right Hon. Lord Strathcona and Mount Royal, G.C.M.G., Chancellor of McGill University. He is therefore one of those who has rendered signal service to the Empire during this war. The regiment served in Cape Colony, Natal, Orange Free State, Zululand, Transvaal, but principally in Natal under General Sir Redvers Buller, V.C. He was the most popular general among the rank and file of the army, especially the Strathconas. The Regiment returned

home by way of England in time to witness the funeral of the late Queen Victoria. It was presented with colours by King Edward VII. It was disbanded on its arrival in Canada, in February, 1901. While in South Africa it made a great name for itself in fighting qualities. Twenty-eight men were killed.

Surg.-Lieut. C. B. Keenan, M.D. Med., 1897. Received the Distinguished Service Order and a Captaincy in the Canadian Militia Reserve.

Vet.-Lieut, G. T. Stevenson, D.V.S., Comp. Med. 1897.

No. 215, Pte. J. A. Crozier. B Squadron. Med., '00.

No. 229, Pte. H. M. Percy. B Squadron. Sci., '00.

No. 453, Pte. A. S. Donaldson. B Squadron. Med., '00.

The Faculty granted Pte. Percy his degree, and last December Pte. Crozier took his final examination and received his.

ROYAL CANADIAN FIELD ARTILLERY.

(Second Contingent)

C, D, E, Batteries, eighteen guns (12 lb. R. B. L.)—five hundred and eighty-nine men. Sailed from Halifax, January, 1900. The batteries were separated, and were engaged in Cape Colony, Orange Free State, Transvaal, and made a great reputation by their excellent shooting. C Battery was also in Portuguese East Africa and Rhodesia, and was the only field battery which took part in the relief of Mafeking. The batteries returned in February, 1901, and were disbanded. The losses were nine men killed.

Surg.-Major. A. N. Worthington, M.D. (Surg.-Major 53rd. Regt.). Med., 1886. For his services he was promoted to the rank of Lieut.-Colonel in the Militia Medical Staff Corps.

Lieut. L. E. W. Irving. (Captain Militia Reserve). C Battery. Med., '98. Did not complete his course.

Lieut. J. J. McCrea, M.D. (Lieut. 16th. "Guelph" F.B.). D Battery. Lecturer in the Faculty of Medicine.

No. 458, Pte. R. B. Blythe, B.A. E Battery. Arts, 1898, and Congregational College, '00.

No. 499, Pte. E. P. O'Reilly, B.A. E Battery. Med., '00. Died of enteric fever at De Aar, Cape Colony, May 17th., 1900.

SECOND BATTALION, ROYAL CANADIAN REGIMENT OF
INFANTRY.

(First Contingent)

Eight Companies—one thousand one hundred and fifty-six men. Sailed from Quebec, Oct. 29th., 1899. This regiment formed part of the very famous 19th. Brigade under Maj.-Gen. H. L. D. Smith-Dorrien, D.S.O. The splendid manner in which it distinguished itself at Paardeberg needs no description. In all it marched one thousand two hundred miles, fought in ten general engagements and twenty-nine others, took part in the capture of ten towns, lost sixty-eight men killed or died and one hundred and thirteen wounded, and had three hundred cases of enteric. C, D, E, F, G, H, Co.'s returned in November, 1900. A, B, I, Co.'s, (I Co. being the reinforcing "Draft") returned five weeks later by way of England. They were reviewed by the late Queen Victoria and by the present King and Queen. They were dined by Queen Victoria and H.R.H. the Duchess of Argyll. Disbanded Dec. 23rd., 1900.

Surg.-Major C. W. Wilson, M.D. (Surg.-Major 3rd. Montreal F. B.). Med., 1886. Now Lieut.-Col. Mil. Army Medical Corps.

Captain W. A. Weeks, B.A., B.C.L. G Co. (Major, Charlottetown Engineer Co.). Arts, 1881.

Lieut. A. Laurie, B.A. Sc. E Co. (Capt. 1st. Regt. P.W.F.). Science, 1898. Now Captain 1st. "P.W.F."

Lieut. M. G. Blanchard. A Co. (Capt. 5th. Regt. Can. Artillery). Comp. Med. Killed at Roodeval, O.V.S., June 7th., 1900. Lieut. Blanchard was terribly mutilated in the chest by a shell. He lived two days, and in spite of his sufferings was full of grit to the last.

Lieut. J. M. Ross. B Co. (Captain 22nd. Regt. Oxford Rifles). Arts, '01. Wounded at Blackmountain, O.V.S., May 1st., 1900. Did not complete his course. Now Captain in the 22nd. Regt.

No. 7618, Pte. H. W. Coates. E Co. Med., '00. Completed his course in 1901.

No. 7631, Pte. H. Fraser, B.A. Sc. E Co. Sci., 1899.

No. 7671, Pte. W. McIvor. E Co. Law, '00. Wounded at Paardeberg, O.V.S., Feb. 18th., 1900. Completed his course, 1901.

No. 7730, Pte. A. S. McCormick. E Co. (2nd. Lieut. 3rd. Regt.). Arts, '01. Now Med., '05, and Lieut. 3rd. V.R.C.

Pte. M. Walkers, B.A. Sc. D Co. Science, 1897.

Pte. R. P. Doucet, B.C.L. E Co. Law, 1896. Now in Johannesburg, Transvaal. Lieut. in the Imperial Military Railway Staff.

THIRD BATTALION, ROYAL CANADIAN REGIMENT OF
INFANTRY.

Eight Companies—one thousand and four men. This Battalion relieved the 1st. Battalion Leinster Regiment of the Imperial Army for service in March, 1900. It is still doing garrison duty at Halifax.

Lieut. N. C. Ogilvie. (2nd. Lieut. 5th. Regt. R.S.C.). Science, '01. Now Lieut. 5th. Regt.

No. 899. Sergt. H. C. Mersereau. Med., '05.

NUMBER TEN FIELD HOSPITAL, MIL. ARMY MED. CORPS.
(Fourth Contingent)

Sailed from Halifax, January, 1902. Sixty-four officers and men.

Surg.-Lieut.-Col. A. N. Worthington, M.D. (Surg. Lieut.-Col. 53rd. Regt.). Med., 1886.

Surg.-Capt. J. E. Johnston, M.D. Med., 1897. (Mil. Med. Staff Corps).

Surg.-Lieut. J. Roberts, M.D. Med., 1901.

Pte. T. F. McMillan. Med., '03.

The services of McGill men were not confined to the Special Service Force of Canada.

IMPERIAL YEOMANRY OF GREAT BRITAIN.

Vet.-Lieut. J. B. Spanton, D.V.S. Comp. Med., 1898.

Vet. Lieut. J. B. Spanton, D.V.S. Comp. Med., 1898.

Vet. Lieut. W. B. Wallis, D.V.S. Comp. Med., 1898.

Corporal W. T. Cameron. Science, '01.

ARMY MEDICAL CORPS OF CAPE COLONY.

Surg.-Lieut.-Col. J. B. Ritchie, M.D., M.R.C.S., L.R.C.P. Med., 1874.

Surg.-Capt. D. F. B. Carron, M.D. Med., 1896.

Surg.-Capt. A. B. Osborne, M.D. (Capt. Can. Mil. Med. Staff Corps).
Med., 1886.

Surg.-Lieut. C. A. Peters, M.D. Med., 1898. (Now Lieut. No. 3
Bearer Co., Can. A.M.P.)

Surg.-Lieut. D. A. Witham, M.D. Med., 1898.

Last, but by no means least, in 1884 the degree of LL.D. was conferred upon the Rt. Hon. The Marquis of Lansdowne, then Governor-General of Canada. He is now Secretary of State for Foreign Affairs in the British Cabinet, but till the middle of 1900 he was Secretary of State for War. As such he naturally had a great deal to do with the conflict. Through his degree he is virtually a McGill man, and completes the roll of McGill in the South African War.

A. S. McCORMICK.

UNDERGRADUATE SOCIETIES.

THE UNDERGRADUATES' LITERARY SOCIETY.

Nov. 30th., 1901.—A meeting of the Literary Society was held on the above date. The attendance was rather small, owing to the proximity of examinations, and it was deemed advisable to postpone the evening's debate (which was on the relations of the colonies to the Empire) until after Christmas. Those present, however, were very fortunate in hearing Mr. Davidson's 'oration,' on the "Doom of War."

Mr. Davidson first pictured war's brighter side—the glory, victory and heroism which often hide the horrors of war. Then he showed the darker side—the wreck of family and home and the sufferings in which all must share. Mr. Davidson concluded his oration by an appeal for the doom of war.

Dr. Walter, the critic for the evening, complimented the speaker and expressed the hope that the postponed debate would prove as great a treat. The meeting then adjourned.

Dec. 7th.—The Literary Society had the pleasure of listening to a lecture by Prof. Flux, on the evening of Dec. 7th. The lecturer dealt with the advisability of a commercial education, and a number of the most prominent business men of Montreal were present. Prof. Flux pointed out that the increasing keenness of competition made the advisability of a commercial education of paramount importance, and urged the business men to lend their aid in practice as well as in theory. The surest way, the lecturer said, to induce young men to take such a training was to show them that such would be of practical advantage to them, and whether such an advantage should accrue or not depended

entirely on the business men. Prof. Flux advocated a healthy system of promotions, and, if possible, travelling scholarships. On the conclusion of the address several of the business men present gave their views—agreeing that broad education was as essential for business men as for those in professions. It was suggested that the University and the business men should join forces and that the latter, by giving preference to university trained men should promote the system advocated by the lecturer. Mr. Barrett then moved a vote of thanks to the lecturer and the meeting adjourned.

Jan. 24th., 1902.—The Literary Society held its first debate since Christmas on Friday, Jan. 24th. As both President and Vice-President were engaged in the contest, Mr. J. De Witt consented to take the chair. Home Rule was the disputed question: "Resolved, that the British Government should grant Home Rule to Ireland." Mr. Plant, the leader of the affirmative, prefaced his remarks by pointing out that it was possible for a man to be both loyal to his country and to recognize its mistakes. Mr. Plant went on to state that in his opinion Ireland was not anti-British, but that the present course of obstruction which its members were following was necessary, and concluded by affirming that if the necessary concessions were made, England would have no more loyal subjects than the Irish. Mr. Jack, the leader of the negative, characterized his opponent's arguments as sentiment. Home Rule to Ireland meant the disintegration of the British Empire, he said, and quoted Dicey in support of his view. Mr. Adams, the next speaker, denied Great Britain the right to regulate the internal business of Ireland. What would a Canadian think if he had to ask the Parliament at Westminster for permission to build a railway from Montreal to Kingston, or to erect a post-office? It was absurd to think that English deputies could legislate properly for Ireland. Mr. Adams concluded by asserting that if the Irish were allowed to govern themselves the sense of responsibility would soon sober them. Mr. Munn, who followed, treated the matter historically. Ireland had had Home Rule in the eighteenth century, and the whole country had been in anarchy, while under the Union it enjoyed a degree of prosperity unknown before. Mr. Couture denied that Ireland had ever really enjoyed Home Rule, and cited Canada and Australia as instances of countries which had grown prosperous under Home Rule. The leaders

then summed up, and the audience voted in favor of Home Rule. Dr. Walter kindly acted as critic.

Jan. 31st.—The question of Imperial Federation was discussed before the Literary Society on Friday, Jan. 31st. Mr. McMillan opened the evening's programme with a most amusing recitation, which was highly appreciated. The resolution read as follows: "Resolved, that Imperial Federation would promote the material welfare of the British Empire." The speakers for the affirmative were Messrs. Cole and Healy; those for the negative, Messrs. Couture and Munn. The affirmative maintained that Canada had three futures to choose between: (1.) Annexation to the United States, (2.) Independence, and (3.) Imperial Federation, and held that of these three Federation was the most desirable. The affirmative concluded their argument by painting a picture of peace on earth ushered in by Imperial Federation. The negative contended that Canada would serve her best interests by remaining as she was, and pointed out the fact that Imperial Federation would inevitably involve injustice to some of the parts concerned. After a short criticism, Mr. Adams gave his decision in favour of the negative. The meeting then adjourned.

THE FRESHMAN—SOPHOMORE DEBATE.

Feb. 7th.—It was an enthusiastic and highly appreciative audience which listened to the representatives of the Sophomores and Freshmen as they discussed the question of "Woman's Rights." Mr. Papineau led for the Sophomores. He traced from the earliest times the progress of woman. He showed that from a condition of semi-slavery woman has risen until to-day in almost every respect she is the acknowledged equal of man. From the fact that she has filled other offices so creditably Mr. Papineau concluded that she would do equally well in a political sphere. Mr. L. Edwards, '05, replying for the Freshmen, held that the mere fact of being educated did not entitle citizens to vote and hold political offices; otherwise, why should the clergy, the army, etc., be debarred from such privileges? The speaker quoted the words of Queen Victoria in support of his views. Mr. McCallum contested the remarks of his opponent. He pointed out that the clergy and army were in a peculiar position, and that Utah and Wyoming were not fair instances of woman suffrage. The next

speaker was Mr. Jenkins. He ridiculed the position of the affirmative, stating that if women had the right to vote, the members of Parliament would become a "pack of dandies." Mr. Archibald devoted his attention to the advantages which humanity would reap if women took an interest in politics. Mr. Greenshields pointed out the fact that a political office required a business education, and contended that such an education did not come within the sphere of women. Professor Flux, the critic of the evening, decided in favor of the affirmative.

Feb. 14th.—For the first time in the history of the McGill Literary Society its representatives met the representatives of Queen's University, the winners of the first round of the newly-formed Inter-University Debating League. President Adams was in the chair, and the Molson Hall was well filled. After Miss Shepherd had rendered a couple of songs very acceptably, the debate began, Queen's moving the Resolution that, "The study of Latin and Greek should be made entirely optional in the Arts course of Canadian universities." Messrs. Watts and Beckstedt spoke forcibly on the question, arguing that all the advantages of a classical education could now be got from a study of translations and of the modern languages, and they also laid special emphasis on the harm done in forcing those who were unable to get any benefit from the classics to study them. Messrs. H. S. Williams and Huntley Duff made up in smoothness what they lacked in force, but they were unable to convince the judges that classics should be compulsory, so that, after some deliberation, Dr. Barclay, speaking for the judges, Messrs. Richard White, Francis McLennan and himself, awarded the victory to Queen's.

Feb. 21st.—Arts and Law met this evening on the occasion of their annual debate, the subject being: "Resolved, that a system of old age pensions should be established in all civilized countries." Verner S. Plant, Arts, '02, and Talbot Papineau, Arts, '04, spoke for the affirmative, arguing that the poor man had now no chance to lay up money to keep him in his old age and that the work could be better done by the government than in any other way. Messrs. Pope and Phelan, of Law, on the other hand, contended that the result would be a lack of independence and increase in laziness and that the friendly societies now did all that was necessary. Prof. Moyse, who acted as judge, awarded the victory to Arts.

Feb. 28th.—It is seldom that the Literary Society has the pleasure of

presenting such a treat to its members and the public as it had this evening on the occasion of Dr. G. R. Parkin's eloquent address on Imperial Federation. Dr. Peterson was in the chair, and there was quite a large crowd in the Windsor Hall, but not nearly so large as the lecture deserved. Those who were absent can best remedy the injustice they did themselves by reading Dr. Parkin's address as it appears in *The McGill University Magazine*.

After the lecture, through the kindness of Dr. Peterson, the members of the Society were able to meet Dr. Parkin, and to spend a pleasant two hours socially.

March 7th.—At the last meeting of the Society for this session the following officers were elected :

President.—H. S. Williams, B.A., Law, '04.

First Vice-President.—W. S. Johnson, Arts, '03.

Second Vice-President.—W. J. Healy, Arts, '03.

Secretary.—O. B. McCallum, Arts, '04.

Treasurer.—L. Edwards, Arts, '05.

Committee.—Messrs. Ogilvy, Couture, Owens, Rubinowitz, and McNaughton.

THE DELTA SIGMA SOCIETY.

Again the Delta Sigma presents its report to the readers of *The McGill University Magazine*, a report which can give only a slight idea of the bright, entertaining and instructive meetings which have been held.

As may be noticed, debates have been a primary feature of this part of the year's entertainment, and so much talent in direct and forceful argument has been developed that the possibility of sending a challenge to the "Literary" was at one time considered. This idea however had to be given up, but next year perhaps it may materialize.

Nov. 18th.—The meeting of this Society, which was held on Monday, Nov. 18th., was of an unusually interesting character. The question as to the relative merits of the Honour Courses in English and Natural Science was under discussion. Miss Dixon and Miss Nolan, of '02, argued that the Natural Science course was the more generally bene-

ficial one, and Miss Wales, '03, and Miss Warriner, '02, defended the Honour English.

The debate was an excellent one, showing very careful consideration of the question by all four speakers.

The judges were Miss Oakeley, Miss Dover and Miss Hammond, who, after some discussion, gave the decision to the Honour English side. Miss Oakeley in giving this decision complimented the debaters on the forcible and pleasing manner in which they had presented their arguments. The meeting then adjourned.

Nov. 25th.—The Annual Lecture of the Delta Sigma was delivered by Mr. Leacock in the Common Room, on Monday, Nov. 25th., before the members of the Society and their friends. The subject was "Anarchism," and in a short time the speaker had given us a comprehensive view of this movement, its foundation and growth. It was the result of the crowded civilization in the beginning of the nineteenth century, when the change from hope to disillusionment after the French Revolution, led men to think that all forms of government were equally bad. Before 1881 it was quite an orderly movement, consisting of federations of political parties, such as "The International Workingmen's Association," and "The Social Democratic Alliance." In that year, however, an Anarchist manifesto was issued, advocating the annihilation of all authorities, and the use of fire-arms and explosives to this end. Since then the whole movement has changed and it is now in the hands of conspirators and criminals, who consider assassination as their chief instrument. There is no longer any attempt at a wide federation and a large number of independent groups are scattered throughout the world. France has a net-work of these groups, but Italy is the real centre of Anarchism. The Anarchists found in England and the United States are refugees from these other countries. Mr. Pinkerton has suggested a cure, which is to put all the Anarchist leaders on a particularly unhealthy Philippine island, full of snakes and jungles, and let them test their theories of government, etc., there. This, he believes, would have the desired effect in a very few years.

The lecture throughout was of absorbing interest and was listened to with the closest attention. After a hearty vote of thanks had been tendered to the lecturer, the audience adjourned to the library, which had lost its academic air, and was transformed into a very cosy tea-room with decorations of green and white.

Dec. 2nd.—At the regular weekly meeting of the Delta Sigma a very spirited impromptu debate was held, the subject being: "Resolved, that it would be beneficial to the students of McGill if the session were lengthened by six weeks." The speakers for the affirmative were Miss Grace Griffin, Miss Parkin and Miss Annie McLeod, and in favour of the negative were Miss Cole, Miss Gass, and Miss Effie McLeod. It was claimed by the affirmative that a longer term would give more time for athletics, a need greatly felt at McGill, and at the same time do away largely with the necessity for cramming, by giving the students plenty of time for the work prescribed. The negative made a strong defence. They considered that even with the lengthened term, so much extra work would be given the students that cramming would be more necessary than ever, and there would be a shorter vacation in which to recover from the effects. This short vacation would further seriously affect some of our best students, who spend the summer months in earning the means to pay their college expenses for the next year. The decision was given by the meeting in favour of the affirmative.

Jan. 13th., 1902.—Mr. Mott's familiar appearance on the platform of the Common Room on the afternoon of Jan. 13th, was the signal for great applause. He gave a delightful talk on some distinguished people he had met, and places he had seen, taking us back in his reminiscences to the Reign of William IV. He spoke of the celebrated actors and actresses he had seen in his youth, of the Chartist movement, and the Chartist orators whom he had heard. He gave us his impressions of Kossuth, Gladstone, John Bright and many others whom he had seen and heard speak. He had had the great pleasure of hearing Dickens read from one of his own stories. At the close of the address the speaker showed us some interesting relics, such as photographs, coins, medals, etc. After Mr. Mott had replied to the vote of thanks the meeting adjourned.

Jan. 20th.—The Delta Sigma met on Monday, Jan. 20th., at the usual hour, with the President in the chair. After the regular business had been transacted an open debate was held, on the subject: "Resolved, that books are more satisfactory companions than people." Many of the members took part, and the arguments used on both sides were very convincing, some of them being also very ingenious and amusing. The vote of the meeting decided in favour of people as companions.

Jan. 27th.—Mrs. Clark Murray addressed the Delta Sigma on Jan. 27th., on the Gouin method of learning French. The speaker emphasized the great necessity for a better knowledge of the French language in Canada, and especially in the Province of Quebec. Owing to shortness of time she was unable to go into the details, but the chief points of the method were very clearly shown with the help of practical illustrations. A vote of thanks was tendered Mrs. Murray for her very instructive and much appreciated address, and the meeting adjourned.

Feb. 3rd.—On Feb. 3rd., instead of our regular meeting, we had the pleasure of seeing the French play, "Ma fille Blanche," represented. It was amusing from beginning to end, and splendidly acted. The management have our sincere thanks for the opportunity given us.

Feb. 10th.—Five o'clock on Feb. 10th. saw the members of the Delta Sigma comfortably seated in the large lecture theatre of the Chemistry Building. Professor Evans had consented to show us some views taken on last summer's mining trip, and accordingly most of the Donalds students were present. We had heard that the slides were excellent and we were not disappointed. By means of about one hundred of these slides and Prof. Evans's interesting comments, we followed the fortunes of the Mining Class in their special car, from Montreal to Vancouver and back again. We saw them when their faces were clean and when they were *not*; when they knew they were being taken, and when they thought there was no camera near. We also got a splendid idea of the scenery in the far West, the Rockies and the mining districts. All joined in the vote of thanks given at the close of one of the most enjoyable afternoons the Society has ever spent.

Feb. 17th.—The large audience gathered in the Common Room on Monday afternoon showed that great interest was being taken in the annual Sophomore-Freshman debate. The question under discussion was: "The free immigration of the Chinese into Canada, is it injurious or not?" The Freshmen, represented by Miss Sharpe and Miss Faber, had the affirmative, and Miss Hart and Miss Hickson, representing the Sophomores, argued for the negative. The affirmative claimed that the Chinese cheapened labor and so degraded it; they did not support our educational system; took no interest in political affairs; never became permanent settlers. The negative claimed that the Chinese would settle here if they got a chance; they were economical, honest and law-abiding; they did not compete with Canadian labourers, but did the menial work and left the Canadians to seek the more congenial

employments. Moreover, it was our duty as a Christian nation to educate and convert the Chinaman.

Miss Oakeley, Miss Lichtenstein, and Miss Dover, the judges, after some time and careful consideration, gave the decision for the affirmative, and at the same time complimented all the speakers on their arguments, and the clear manner in which they had presented them.

Feb. 24th.—An unusually interesting session of the Delta Sigma was held on Feb 24th., when Mlle. Milhau spoke of the Universities of France. The speaker began by pointing out wherein the French Universities differed from those of England and America. In France there are sixteen universities, all of which are under government control, and have the same curriculum, and the same examination papers, which are printed in Paris. In this way the French student has a great advantage, as he can take a term in one university and then pass on to another without interrupting his course in the least. This kills college spirit, which is lacking in France, but it gives the student an opportunity to study human life. The professors are all government officials and often hold civil positions as well. The central and largest university is in Paris. It is one of the oldest on the Continent, being established in the first decade of the twelfth century. Its first great scholar was the famous Abelard. It would be impossible here to give even the outline of the whole address, which was full of interesting and amusing facts about French students. Mlle. Milhau in replying to the vote of thanks, said that next year she hoped, with the assistance of some lantern slides now being prepared, to give us a better idea of college life in her own country. Needless to say, we shall look forward to that time with much pleasure.

March 3rd.—At this meeting it was decided to hold our annual business meeting on Monday, March 10, instead of a week later, as intended. This is in order to have the list of officers for the new Calendar. A committee was appointed to receive nominations, and then the meeting was given up to an impromptu debate on the subject: "Resolved, that the fear of punishment is a greater incentive to diligence than is the hope of reward." The decision was given in favour of the negative. The meeting then adjourned. For our last meeting, to be held on March 17th., we have the prospect of an address by Miss Lichtenstein.

This we feel sure will be very enjoyable, and form a fitting close to our winter's programme.

E. IRVING.

APPLIED SCIENCE SOCIETY.

The past season has been a very successful one for the Applied Science Society, due in large measure to the efforts of the President, Mr. H. P. Borden. No small share of credit is due Mr. C. M. Campbell, whose artistic posters were the means of advertising the lectures.

The work of the year consisted of three popular lectures on live topics, which were open to the public, and the interest taken was evinced by the crowded meetings.

The opening meeting of the Society was held in the lecture theatre of the Physics Building, on Nov. 25th. Prof. F. D. Adams gave a lecture on "The Flow of Rocks," descriptive of a series of original experiments carried on in the laboratories of the College by Professors Adams and Nicholson.

The lecturer showed slides of machinery especially designed at McGill for applying tremendous pressures, and also of columns of marble which had been squeezed until the molecules had slipped and twisted, separated and reunited, changing the appearance of the structure, but weakening the specimen comparatively little.

These experiments have shown the reason of the irregular structure of the rocky strata of the earth's crust. They explain the action of earthquakes and the building up of mountains to their present shape.

This is one of the experiments in which McGill is taking a leading place.

The largest meeting in the history of the Society was held in the Physics Building on Dec. 20th.

A most interesting and instructive lecture was given by Professor Rutherford on, "Telegraphy without wires." The lecturer gave a brief account of the history of wireless telegraphy, and explained with experiments Marconi's researches and recent experiments leading to the present satisfactory state of the Science. As the subject of the lecture was of popular interest the meeting was open and several gentlemen connected with telegraphic, cable and electrical companies in the city, were present. The meeting was the largest in the history of the Society.

On the invitation of the Canadian Society of Civil Engineers in annual convention assembled, the meeting of Jan. 20th. was held in

the rooms of the above Society, on Dorchester street, by the Applied Science Society.

Mr. R. B. Rogers, Sc., '76, gave a most interesting and instructive talk on "The Trent Canal," of which he is chief engineer.

The lecture was well illustrated with maps of the country, views along the canal and working drawings of the different parts of the locks.

On the evening of March 3rd, Dr. Stansfield, Professor of Metallurgy, lectured at an open meeting of the Society. The subject of the lecture was "The Electric Furnace, as used for the heating and melting of metals and for the production of calcium carbide."

Several kinds of furnace were shown by Dr. Stansfield, assisted by Howells Frechette, B.Sc. By an ingenious contrivance views of the actions taking place in the interiors of the furnaces were thrown on a screen. The lecture was the same as one in which Dr. Stansfield assisted Roberts-Austen on his visit here with the British Association in 1897. A large audience, including many friends of the University from the city, enjoyed the lecture.

The series of lectures given this year by the Society has been somewhat of a departure from the usual course. It has, we hope, brought scientific and business men in the city more closely into touch with the work, and especially the research work which is being carried on by the Professors of McGill. That the subjects have been of interest and the lectures appreciated has been shown by the large and attentive audiences at every meeting.

The next lecture under the auspices of the Society will be given by Mr. Lincoln, on "The Power Construction work at Niagara," on March 17th.

THE HISTORICAL CLUB.

Jan. 15th., 1902.—It is the custom of the Historical Club to vary its regular programme on its first meeting of the new year by introducing a debate instead of the customary essay. The debate is of an historical character, and its object is to discuss some point in history in a more argumentative fashion than is possible at the ordinary meeting. The

subject of debate this year was : "Resolved, that the Southern States had no valid reason for seceding from the Union." Mr. W. G. Macnaughton introduced the subject and Mr. T. M. Papineau supported him. They were opposed by Messrs. Parkins and Bates. The debate was of unusual merit, both sides supporting strong arguments in support of their views. Dr. Colby and Mr. Leacock acted as judges. The decision was given in favour of the negative, and after a very interesting criticism by Dr. Colby the meeting was adjourned.

Jan. 23rd.—The regular meeting of the Historical Club was held on the above date, in the Y. M. C. A. rooms. An interesting programme was provided. Mr. W. C. Munn, Arts, 1902, read an essay on Poland, and Mr. A. R. Lockhart, Arts, 1903, one on the Balkan States, both papers dealing with the Slavic question. An interesting discussion then took place, in the course of which many new facts in connection with the subject of the evening were brought to light. The meeting then adjourned to enjoy the social hour, which is generally the sequel of a meeting of the "Historical."

Feb. 5th.—A meeting of the Historical Club was held on Wednesday, Feb. 5th. The chair was occupied by the Vice-President, Mr. Harper. The subject of the evening was the Austro-Hungarian Empire, and three papers were read in relation to it ; the first by A. D. Harris, was entitled, "The Young Czechs." The writer dealt in an instructive manner with the general political conditions existing in the Empire, and especially with the fortunes of the party known as the Young Czechs.

Mr. H. H. Murphy followed, with a paper on, "Hungary since 1867," giving a clear insight into the condition and possibilities of this nation. The last paper was by Mr. Adams, Its subject was, "The modern German element in Austria." Mr. Adams dealt with his subject in a thorough manner, giving a good idea of the intricacies of Austrian politics. Before adjourning Dr. Colby made some interesting remarks on the Austrian Empire.

Feb. 20th.—Through the kindness of Dr. and Mrs. Colby, the regular meeting of the Historical Club was held at their residence, a very pleasant change for the members. Two essays on French colonial affairs formed the programme of the evening. Mr. Couture, in his paper on "The French in Algiers," had to combat the idea that the French were unsuccessful in developing the countries which they colonized. He

showed that in Algiers there had been colonists who combined the daring and the heroism of the early French settlers in Canada, with the ability to make things pay, usually supposed to be monopolized by the Anglo-Saxons.

The second paper, which was by Mr. R. J. Harper, B.A., was on a question likely to be of grave importance in the near future—the French Shore Rights in Newfoundland. This subject was treated in an historical way, the essayist taking up in order the various treaties by which the English governments had foolishly given up the rights of their own settlers. A presentation of the situation as it now exists concluded the paper. After a short discussion, Dr. Colby, in the absence of the third essayist, threw some light on the French policy in Tonquin, and especially on M. Ferry's part in it. He took M. Ferry as an example of a prime minister who regained lost popularity.

Mar. 6th.—A business meeting of the Historical Club took place at the McGill Y. M. C. A., on the above date. The discussion of last year's programme brought out the fact that the members would prefer to have the discussion follow each paper rather than come at the end of the meeting. It was decided to recommend that the subjects for essays next year should be confined to North and South America, special emphasis to be placed on the history of the United States.

The following were elected as officers for next year :—

President.—W. J. Healy, Arts, '03.

Vice-President.—G. P. Couture, Arts, '03.

Secretary.—W. S. Johnson, Arts, '03.

Treasurer.—O. B. McCallum, Arts, '04.

Members of executive committee.—Dr. Colby, G. Lomer and Grant Campbell.

THE MCGILL MEDICAL SOCIETY.

This Society has held regular meetings throughout the session every alternate Friday evening, with a larger attendance than ever before, on one or two occasions two hundred students having been present. The meetings, as in years past, have consisted largely of papers and discussions by the members on medical and allied subjects, but in

addition to this part of the programme the Society has been fortunate in having had the assistance of some of the Professors in making the meetings interesting and instructive.

The Honorary President of the Society, Dr. C. F. Martin, has on two occasions shown lantern views of foreign Universities and eminent medical men and scientists, whose names are intimately associated with the advance of medical Science. Dr. Wesley Mills gave a lantern demonstration of a number of slides of the nervous system, and showed in a manner intelligible and instructive to Freshman and Senior alike, how impressions from the outside world were received, interpreted and acted upon by the brain and nervous system of man. On another occasion, during the height of the small-pox scare, Dr. F. J. Shepherd showed a number of slides, illustrating the eruption of this disease in its various stages. He also demonstrated a series of slides of some cases of skin diseases that are not commonly seen, but which he had collected from his large clinical experience.

The Christmas address was delivered by Dr. A. E. Garrow, who took as his subject, "Medical Ethics." Dr. Garrow dwelt on the importance of a medical man being a gentleman in the highest acceptance of this term; of his bearing toward his patients and his treatment of his fellow-practitioners; how physicians are looked up to in the community, of the confidences placed in them by their patients, and of the necessity of each one proving himself worthy of this trust. Many pointers were given to the young practitioner, and each one present at the address felt that he was better fitted for his profession by having obtained this advice.

Another of the special evenings was when Dr. C. B. Keenan, D.S.O., Surgeon to the Strathcona Horse, entertained the Society with an account of his work in this capacity. He told of the necessary outfit and equipment for a Regimental doctor, of such an officer's duties, of the diseases he had encountered in South Africa, of his experience with bullet wounds of various kinds, and closed his address by telling of the openings for a young doctor in South Africa.

The Debate on the subject, "Resolved, that Tuberculosis can be as well treated in Canada as elsewhere," was a feature of the year's programme. In this the debaters maintained their respective sides with vigour and ability, and while the Negative showed that Canada was woefully behind many other countries at present in the prophylaxis and

treatment of this disease, the speakers on the Affirmative maintained their position that Canada has as good, if not better, opportunities for the treatment of Tuberculosis in its various forms as have other lands.

To pick out any one or two papers presented to the Society for special mention would be a difficult task, and would be unfair to the rest. These have all been of high merit and have shown thought, work and care in their preparation, and in the discussions that have followed the writers have shown their grasp of the subjects in being able to answer the questions asked them and in backing up the statements made in their papers.

The programme for the meetings up to date is as follows :

Friday, October 18th.—(1.) Paper, "Cocaine-Analgesia by Lumbar Puncture," R. C. Paterson, B.A., '02. (2.) Paper, "The Early History of Medicine," F. E. Stowell, '03.

Friday, November 1st.—(1.) Paper, "The Early History and Prophylaxis of Syphilis," W. A. Gardner, B.A., '02. (2.) Paper, "Hypnotism," N. W. Strong, '03.

Friday, Nov. 15th.—(1.) Paper, "Neuritis," J. R. Byers, '02. (2.) Paper, "Malaria, from Marsh Poison to Mosquito-bite," S. B. Thomas, '03. (3.) Paper, "A few Anthropological Notes," J. C. Fyshe, B.A., '04.

Friday, November 29th.—(1.) Paper, "The Modern Bullet, its Effects and their Treatment," R. C. Cox, '02. (2.) Paper, "Longevity," D. W. McKechnie, '03. (3.) Paper, "Diseases of Occupation," W. A. Lincoln, '04.

Friday, Dec. 13th.—Debate: "Resolved, that Tuberculosis can be Treated as well in Canada as elsewhere." Speakers in the affirmative, A. Campbell, '02, H. Walker, B.A., '02. Speakers in the Negative, A. C. Ames, '02, E. A. Hyatt, B.Sc., '02. Judges of Debate; Dr. Lafleur, Dr. Adami, Dr. Hamilton.

Friday, Jan. 10th., 1902.—Address, "Medical Ethics," Dr. A. E. Garrow.

Friday, January 24th.—(1.) Paper, "The Historical Aspect of Typhoid Fever," E. B. Eastman, '02. (2.) Paper, "The Progress in the Study of Anatomy in the Last Century," R. Elder, B.A., '03. (3.) Paper, "The Ancestry of the Tissues as regards Form and Function," V. L. Miller, B.A., '04. (4.) Elementary Biology, its Value in a Medical Training," E. H. Henderson, B.A., '05.

Friday, Feb. 7th.—(1.) Paper, "Notes of a Regimental Doctor in

a Mounted Infantry Corps (with Lantern Views)," Dr. C. B. Keenan.
(2.) Paper, "On Massage," O. R. Peters, '02.

Friday, February 21st.—(1.) Paper, "Pain and its significance in Diagnosis," J. A. E. Campbell, B.A., '02. (2.) Paper on "Christian Science," C. W. Anderson, B.A., '03. (3.) Paper, "Sketches from the Lives of Some Great English Physicians," J. A. Nutter, B.A., '04.

Friday, March 7th.—(1.) Paper, "Tuberculin, in the Diagnosis and Treatment of Disease," J. E. Menzies, '02. (2.) Paper, "Primitive Surgery," R. W. Geddes, B.A., '04.

H. S. WILLIAMS.

ATHLETICS.

HOCKEY, 1901-02.

Although McGill did not have hockey teams playing in any league this winter, the season has not been an uneventful one in Hockey and Skating circles.

For the past two seasons it has been found very difficult to maintain Intermediate and Junior teams in the Canadian Hockey League. The greatest difficulty which our football men have to encounter, is lack of time for practice. This is even more disastrous to hockey. The practices which are held in the evening interfere with college work even more than hours in the daytime do. A player can get little or no work done during the same evening in which he plays hockey. Thus, when there are two practices each week, and perhaps a match in addition, college work is bound to suffer. The natural result was that the men turned out to the practices very irregularly, and some of the best players could not be induced to play at all. Lack of practice and changes in the *personnel* of the team, resulting from these circumstances, were largely responsible for the poor showing made by the McGill teams during the last two winters. Recognizing these facts, the committee thought it advisable to withdraw both teams from the Canadian Hockey League, and to devote their attention to inter-class and inter-faculty matches.

On account of the lessened scope of the Hockey Club it was considered best by both the Hockey and Skating Committees to amalgamate the two clubs and form one. Accordingly the annual meetings of the

two clubs were held on the same evening in December, and the McGill Hockey and Skating Club was formed.

The following officers were elected :—

President.—Percival Molson.

Vice-President.—S. Dale Harris.

Secretary.—L. S. Mackid.

Treasurer.—G. O. McMurtry.

The committee in addition to these officers consisted of four representatives from each of the Faculties of Arts, Medicine and Science, and three from the Faculty of Law. At a subsequent meeting of the committee F. H. McLaren was elected as manager of the hockey team and P. Molson as captain.

In Hockey as well as in Football and Athletics the tendency towards inter-collegiate competition is steadily growing. The Inter-collegiate Football League has been established now for four years. There have been three successive inter-collegiate track meetings. And now there is the probability of an Inter-collegiate Hockey Association being formed in the near future.

At a meeting held in Kingston last November, it was decided that although it would be impracticable to form a league this year, chiefly owing to financial difficulties, home-and-home matches would be played between 'Varsity, Queen's and McGill, and in this way the basis would be formed for an Inter-collegiate League. These home-and-home matches did not take place. The Queen's team was largely composed of graduating men, and after their season in the O. H. A. was over, they were unwilling to do any more travelling. The financial side of the question kept 'Varsity from visiting Montreal. McGill, however, not being in any other league, and being anxious to meet the other universities, decided to play both 'Varsity and Queen's on their own ice, if they could get a sufficient guarantee toward the expenses of the trip. The financial arrangements were satisfactorily concluded, and the McGill team left for Toronto. They played 'Varsity on the 13th. of February, and Queen's on the 15th. 'Varsity won the first match by a score of eight to six, three of their goals being scored in the last ten minutes' play. Queen's won by a score of five to three. In this match also McGill was beaten during the latter part of the game. Lack of experience was responsible for McGill's defeat more than any other cause. There is no doubt that the team would have done better

if it had played two or three other matches before it met 'Varsity and Queen's. Moreover, it would have done much better if it had been playing at home on a larger sheet of ice. In Toronto especially the shortness of the rink bothered the McGill team. On the whole the team made a very creditable showing and have nothing to be ashamed of.

Following the example of the Athletic Association, the Hockey and Skating Club decided, if possible, to change the Inter-faculty Hockey Trophy to an Inter-year Trophy. Professors Capper and Porter, the donors of the trophy, readily consented to change the conditions of competition, and the result justified their action. The Sophomore year won the championship, after an interesting series of matches, by defeating the Juniors and the Freshmen. Messrs. Notman and Son took some excellent snap shots of the latter match. These will probably appear in "Outing," next month.

The Inter-class championships were won by the Sophomore year in Science, and by the Freshmen year in Arts. In Medicine the championship was undecided owing to the early breaking up of the weather.

One of the features of the skating season at college this winter was "Visitors' Afternoon." On several occasions a "hurdy-gurdy" was hired and crowds of students from the Royal Victoria College as well as from McGill skated around the rink to its strains.

For the first time in the history of the McGill rink, water was kept running in the dressing rooms throughout the whole winter.

P. MOLSON.

COLLEGE LIFE AT BRYN MAWR.

The College of Bryn Mawr has been developed with the aim of giving it a similar place with regard to the education of women in the United States that the Johns Hopkins University occupies in relation to that of men. In carrying out this aim, Bryn Mawr has naturally reproduced many of the features of its older and more comprehensive ideal. In the undergraduate courses, which are unusually complete for a small college, the standard of scholarship is rather higher than that prevailing in most of the American Women's Colleges, and it also offers in every department, a course of graduate lectures leading to the degree of Doctor of Philosophy. The success which has attended all its efforts is largely due to the wisdom, foresight and indomitable energy of the woman who has been at its head for the greater part of the fifteen years of its existence.

Fifteen years seems young indeed as colleges go, but so cleverly does it belie its youth, with well-assumed airs of age in its buildings and traditions, that no one, without a previous knowledge of statistics, would think of crediting Bryn Mawr with less than a respectable fifty.

The College is situated a little to the west of the city of Philadelphia, where the old Welsh farms and stately country homes of the Philadelphians give an almost Old World finish to the landscape. The buildings are grouped together on a spot slightly dominating the surrounding country. About the academic buildings as a nucleus are clustered the low, rambling halls of residence, of quaint Elizabethan Gothic architecture. The grey walls are dark with the ivy which also kindly clothes the uncompromising outlines of Taylor and Dalton Halls, into whose architecture no thought of beauty entered. On the

slope and the lower part of the grounds are the homes of the members of the Faculty.

The social organization of the college is one of its most interesting features. The community of four hundred and twenty students constitutes a small democracy,—no power is recognized either to make or to enforce laws except that of the student body as represented in the association of self-government. The Faculty has under its control only the academic interests of the place, and there its responsibility ends, and that of the student begins. The spirit of self-government, in which public opinion is the strongest ruling factor, is undoubtedly responsible for the balance and the rational tone that characterize life at Bryn Mawr.

The social interests of the students, during their term of residence, are largely bounded by the limits of the campus, but within these may be found a wealth of companionship and variety. The outside world is by no means excluded, but the great social functions are given by the students and for the students. The Philosophical Club entertains as its guests such men as Professors James, Münsterburg, T. Mark Baldwin, and many others of wide academic reputation, while the world of letters is represented by the lecturers of the Graduate and De Rebus Clubs, which have a long list of distinguished names to shew, among which might be mentioned Brunetière, Edouard Rod, Israel Zangwill, Hilaire Belloc, and Hamilton Wright Mabee.

The Quaker origin of the college forbids the introduction of music into the curriculum of studies, but a series of concerts is arranged for every winter by the students, and Mme. Schumann-Heink, David Bisham and the Kneisel Quartet are attractions which never fail to fill the chapel with an enthusiastic audience.

The temperate climate of Southern Pennsylvania renders possible a great deal of out of door life at Bryn Mawr. In the long succession of bright, beautiful days in the autumn, the campus is thronged all day with students of varying degrees of energy, from the indolent reader in the shade of a tree, to the latest convert to the English game of hockey. Again in the early spring when the first pink haze appears on the Japanese cherries, the study fires are deserted, tea-tables are transferred to the campus, and study and hospitality both hold sway in the open air.

HARRIET BROOKS.

RADCLIFFE—THROUGH MCGILL SPECTACLES.

To have lingered so long at one University that its customs have come to seem essential rather than local characteristics, must make one's attitude towards other universities that of comparison. It is in such a spirit of comparison, and as a former McGill student, that I am giving this account of Radcliffe. I must ask my reader's forbearance if my remarks be in an order not so much logical as suggested by a desultory habit of mind.

Assuming in my reader as profound an ignorance of Radcliffe as my own when first I came here, I shall begin by describing its relation to Harvard. Unlike the Royal Victoria, which is a college in McGill, Radcliffe is not a part of Harvard. It is an independent corporation, affiliated for its own advantage. It has its own President and Council, numbering as many women as men; it owns its own buildings, collects its own fees, and makes its own plans for future development.

But while separate to this extent, it is in other ways closely connected. Its Council is assisted by an Academic Board of Harvard Professors, and it is governed by Harvard regulations. I quote the official statement of its connection with Harvard. "The requirements for admission are identical with those for admission to Harvard College. The courses of instruction given in Radcliffe College correspond to both "undergraduate" and "graduate" courses offered by Harvard University, and are more than sufficient to enable a woman to perform the work required by the University for the degrees of A.B. and A.M. In addition to these, Graduate Students in Radcliffe College have

access to a large number of graduate courses in Harvard University. The examinations are the same in both institutions, and the diplomas conferring the degrees of A.B. and A.M. are countersigned by the President of Harvard University as a guarantee that these degrees are equivalent to the corresponding degrees given by the University."

One can see from this that Radcliffe is about as large a sharer in the benefits of Harvard as the Royal Victoria, in those of McGill. The chief practical difference is that Radcliffe has almost no co-education. It has four buildings for lecture rooms and laboratories, and in these more than one hundred Harvard instructors repeat their lectures for classes of women. The number of students who take advantage of courses at the University is comparatively small. Students of science go to the various University museums, and a few women read at the University library, or do research work in the stack. But the majority of Radcliffe students never enter a Harvard building, and for them Radcliffe is not co-educational. A Sophomore or Junior at Radcliffe has no connection at all with the men of the corresponding class at Harvard. The spirit that has manifested itself in skating parties and entertainments of other kinds at McGill is unknown and impossible here.

To one who is used to co-education, except in elementary work, it seems strange to go back to separate classes, especially in advanced subjects. A comparison of the two systems inclines one to prefer the former. Here at Radcliffe one cannot derive advantage from seeing the superior male intellect at work; nor, on the other hand, from observing in men defects and foibles which one has been taught to consider peculiarly feminine. Deprived of these broadening influences, one can only hope that the professors do not indulgently judge the women by lower standards than those applied to men.

And now a few words on the curriculum. Required studies are almost extinct at Radcliffe, while the elective system flourishes and is carried to its extreme limit. The theory is that a student who has fulfilled the severe requirements of the entrance examination, is in a position to profit by any group of studies she may wish to select from those offered by the college. A certain number of courses are required for the A.B. degree, but the nature of these is decided by the individual student. A course in English composition is prescribed for Freshmen, but even this may be "anticipated" at school. One may begin to

specialize immediately after entrance, or one may indulge in an *olla podrida*, a little of every branch.

For the student with mature tastes and defined ability, the elective system is little short of ideal. Take as an example a student who is preparing herself as a specialist in English,—the strongest department at Radcliffe. She may take nearly all her undergraduate work in that branch; or she may acquire as much or as little as she pleases of classics, or modern languages, or history, to round out her knowledge of any period. A student who is in training for graduate work in any department of mediæval literature, where knowledge of all contemporary literature is so important, may select at will from the Teutonic or Romance, from the Italian or Scandinavian, or Historical departments, courses which will most adequately equip her for her special work. No student need be under the temptation of shouldering a whole honour course as the only escape from Mechanics, or Zoology, or some such nightmare to the literary mind.

But of course everyone who chooses her work under this system does not choose wisely. From remarks that one hears at the beginning of the sessions, the motives for choice seem to be as manifold as the sands of the shore. When girls come to college for athletics primarily, or just because their friends are coming and it is the thing to do nowadays, or in order to have a good time and make new friends,—when they have motives like these they must of course be at a loss to know what subjects to choose. A good method would be as follows: First, take a “tabular view card.” Put down on it your gymnasium and club hours; nothing must interfere with these. If you are living at home—as more than half the Radcliffe girls are—you will have other engagements, probably, to jot down. If you live in the suburbs and come over on your wheel, or in the cars, you must try to group your work so as not to come every day in the week. Find out which courses are especially in favour, and which ones your friends seem to think they want to take. Two of these will probably suit your free hours. After they have been jotted down, find out which of the remaining hours are most convenient; and pick out all the courses that come at these times. The following principles will finally determine your choice between these. First;—there must be no report or thesis to write; second,—the course must, if possible, be a “snap”; third,—the personality of the professor may decide a doubtful case. The marvel

is, that courses that seem to have been selected somewhat after this fashion, turn out often to be quite homogeneous and reasonable.

Another advantage of the Radcliffe over the McGill student is in the greater length of the terms. Not only are there thirty weeks of lectures instead of twenty-four, but these periods are broken by Christmas and April vacations, and by two examination periods of about three weeks each. One gets more work done during the college year and the pressure is not as heavy as at McGill.

One of the immediate results of the long terms, is the popularity of college amusements. Radcliffe has a great many societies. The Idler, largest of all, is really a dramatic club, presenting fortnightly tableaux or theatricals. Fay House has an Auditorium provided with a very good stage and green-rooms; and here the dramatic talent so plentiful at Radcliffe is developed by frequent practice. The Idler plays train the girls for the more important public performances of which there are about half a dozen through the year, generally for some charitable purpose.

The Athletic Association numbers a great many members, and holds two meets each year. At these the class-championships in gymnastics are competed for, and some very good rope climbing and high jumping are to be seen. Hockey and tennis are the outdoor sports, hockey being played on grass, not on ice. Through the winter basket-ball is the chief excitement. There is an excellent college team which plays outsiders, and each class has its own picked team to play the other classes for the college championship. A good actress and a good basket-ball player are alike "stars" at Radcliffe, and the objects of plentiful admiration. The Choral Club numbers a good many members, and there is a Y. W. C. A., and a college settlement association. But most of the Radcliffe Clubs—and their name is legion—are limited in membership. There is a French Club, a German, an English, a Science, a Music, and a History club, and others that slip my memory. Membership in these depends on having taken, with high standing, a certain number of courses in the subjects to which they are devoted. In some the number of members is limited. All invite applications for membership in the autumn, and these applications are voted on by the existing members. As a general rule the clubs meet once a fortnight. Instead of torturing themselves and one another by constantly preparing and reading essays, most of the

clubs invite professors of Harvard or other institutions to address them. The English Club, especially, is reported to secure excellent lectures. Greek letter fraternities are non-existent at Radcliffe, though deeply rooted in most women's colleges in America. Each year, as at McGill, has its organizations, with president and other officers, and judges in the never-failing "scraps" at election times. As well as a lunch the different classes have dances and plays. Special students also have a club, as do the graduate students.

There is not the same outward distinction between undergraduates and special students at Radcliffe as at McGill. The use of cap and gown is confined to the seniors, and with them is not obligatory. As a result one easily confounds students of the first three years with graduates and specials. A very wise regulation compels all students to take the examinations in the courses which they attend, and this, too, tends to make the special student more like the undergraduate. Very often, indeed, specials undertake more work, and do it better, than many of the undergraduates.

Examinations at Radcliffe are hardly as great a bugbear as at McGill. To begin with, there are not as many of them. Four courses are all that a great many students take, and no one may count more than six. Each course means one examination. The periods for examinations are of nearly three weeks each, and generally the papers are spread out over the period. Even then one hears grumbling at the closeness of them. At such times I have mentioned the fact that my own release from the senior year at McGill was only won by writing on twenty-four papers, within nineteen days, but blank incredulity has generally greeted my statement. Ranking is done by letters from A down to D, these divisions being further subdivided by the use of A +, and A -, etc. A + to B-, corresponds roughly to a McGill first class. No lists of results are published. A candidate may find out her own grade at the office, but no one else need know it. As a matter of fact one hears of all the A's, most of the B's, some C's, and no D's, unless the victim happens thereby to be debarred from playing basket-ball. There is not as much rivalry between persons as at McGill, especially since there are no medals to serve as bones of contention; but there is quite as much anxiety to secure good marks.

Degrees are given on the work of the four years, and range from A.B. *summa cum laude* to the plain letters. One D during the four years

prevents one from having a tail to the degree, unless the deficiency is made good by taking an extra course. Students here take fewer courses than at McGill and do more work in each. Quite elaborate reports or theses are asked for in a good many subjects, and in any case there is generally a good-sized list of required reading.

College slang flourishes at Radcliffe, but does not always correspond to McGill terminology. "Cribs" and "keys" are unknown, but a strange animal called a "pony," frequents the classical lecture rooms. No one "slopes" at Radcliffe; but one hears of "cutting," or "taking a cut," and, alas! the phrase is not confined to the student body; an instructor, too, "takes a cut," or "gives a cut," as the case may be; "taking" is a surprise, while "giving" implies a petition from the class. Radcliffe students do not take easy courses to get good marks; they enquire for "a snap," in order to "pull an A." No one is "plucked," though some unfortunates "flunk." Finally, the careless, jovial undergraduate does not keep the hard-working one in a proper state of subjection by judicious application of the word "soak"; instead she talks of "being a grind," or, worse still, "a shark," an insatiable devourer of courses and good marks. A shark! The word with all its hideous associations echoes ominously through my brain, as I look at the sheets I have covered, and think of the space in The McGill University Magazine that I am greedily usurping. Never will I deserve that appellation; I bring my remarks to a hasty close.

MURIEL CARR.

WITH THE R.C.R. IN SOUTH AFRICA.

The only time I regretted enlisting in the 2nd. Batt., Royal Canadian Regiment, for service in South Africa was during the first week at sea, on the S.S. "Monterey." On board were the Strathcona Horse, five hundred and ninety strong, and one hundred and ninety reinforcements ("the Draft") for the 2nd R.C.R., to take the place of those lost at Paardeberg. In one hour from the time we sailed from Halifax, I thought if there was a bigger idiot than myself in existence he must be worth seeing; so sick was I that I was kept in the ship's hospital for four days. Misery loves company, and I had plenty, for in addition to the men were six hundred horses, and fifteen dogs. A pet black and tan terrier could have vanquished the fiercest bulldog we had with ease. The men lay around in heaps, and a "sicker" looking crowd would be hard to find. The horses suffered most, and for several days were very ugly. The R.C.R. furnished the night guards, and when the reliefs were marched along, between the stalls, the horses would snap at them. This was highly interesting to the sergeant and corporal who had to make the rounds every half hour. One horse succeeded in getting hold of my right arm; but fortunately I was so far away that he did not get a firm grip, and I escaped with a bruise.

To descend to our quarters we had twenty-seven steps to navigate, which was pleasant for the orderly man. One would be descending with a "dixey" of soup in one hand and a pan containing meat and potatoes in the other; suddenly the ship gives an unusually violent lurch, and there is a combination of rattle, bang, bump and deluge.

In Capetown we took our turn in guarding two thousand Boer prisoners for twenty-four hours, and although it was our first hard duty and extra serious for green men, we nevertheless performed our task well enough to satisfy Lieut.-Gen. Sir F. Forestier-Walker, by whom we were inspected. In enforcing the rules the sentries often used very forcible but effective language ; indeed, no command had to be repeated. Some prisoners told me they preferred the Canadians and Australians to the other troops, considering them superior in most ways, especially in physique. The colonial troops from across the sea were certainly ahead of the British Tommy in physique, education, etc., and fully his equal in fighting qualities. This, however, is no disparagement to Tommy, for he is "all right." The Boers were always very pleasant in conversation.

Guard mounting is rather perplexing at first. The first time we performed this duty, the way some men became tangled up, as regards challenging, was terrible. The challenge is : "Halt, who comes there?" The answer is : "Friend," etc. One private, the son of a well-known Ontario politician, startled the officer of the day by yelling, "Halt, friend, what do you here?"

Fatigue parties were placed in charge of a Non-Com. At Kroonstad there were seventeen Canadians in the Provisional Battalion, and being corporal, I had charge of them. One mile from the trenches we were guarding, was a large "supply park." A park consists of all forms of food, both for man and beast, arranged in huge piles of boxes, bales, etc. One afternoon about five o'clock three of us started out for a stroll, ostensibly. Of the other two, Mac was from Halifax, W— from London, Ont. It was growing dark and near the park Mac descended into a huge ditch, fifteen feet deep, which ran within a few yards of the "grub" which we were seeking. I kept guard above, while W— skirmished for an opening to pass the sentries. By a stealthy charge he "commandeered" a box,—and made for the ditch. Together we began the descent with the prey, which weighed forty pounds. The earth assisted us by giving way and depositing us in slimy mud at the bottom. To our disgust we discovered that we had obtained only biscuits or hard tack. Once more a charge was made, and this time we obtained a box of Bruce's Army and Navy Rations, containing twelve tins of two pounds each. The food consists of delicious soup and vegetables. We tramped along the ditch for a safe distance, and

then my usefulness as corporal began. I had two conspicuous red stripes on my arm. The others shouldered the boxes, and I marched my fatigue party through the streets, past officers and military police, to the camp. Two years' hard labour would have been our reward if discovered.

A family of pigs daily wandered past our camp. This was too much, and their appearance was the signal for a terrific rush, participated in by Gordons and Canadians, armed with a murderous assortment of weapons, and falling over each other. One day we captured one, but he was too small; however, the next day we captured a big one, but so old and grey that we had to release him also. The pigs never appeared again.

Corrugated iron is largely employed for building purposes in South Africa. At Springs, Z.A.R., the chief coal-mining town, we were stationed for two months, and occupied the unused buildings. One night number four sentry reported heavy firing at number seven outpost; accordingly, the garrison consisting of one thousand men, was hastily turned out, and reinforcements sent to number seven. The men there knew of no disturbance, however, and it transpired that a Kaffir transport driver in passing a house, had drawn the butt of his whip along the iron, thus startling the sentry, who was probably lost in thought. Our opinions of the latter's intelligence were far from complimentary. Outposts were stationed on the coal dumps, which are usually one hundred feet high, and cover an area of two thousand square yards or so. The dumps are burning in many parts, and at night present a red and black striped appearance. To wander out of the beaten path meant to sink in the hot coal. Every second or third day the wind blew a terrific gale, and gave us plenty of opportunities for testing the flavour of soup mixed with coal dust for dinner. On returning to barracks the men were almost unrecognizable from the dirt, and often their faces were perfectly black.

Every morning before daylight we stood to arms, which spoiled the best time for sleeping. Another duty was railway patrol to Brakpan and return, a journey of twelve miles on a "trolley" or car pushed by two Kaffirs. The only time I made the trip a train appeared, and we hastily removed the trolley; but not far enough—the engine rammed it, and we had to walk the rest of the way pushing the wreck ahead of us. It rattled and shook, emitting blood-curdling squeaks and groans, and

greatly puzzling the sentries at various parts of the line. We arrived home over four hours late.

Everything was not fun, however. The hardest march we had was the pursuit of De Wet, whom we drove for two hundred miles out of the Orange Free State, pressing upon him, but never catching him. In eighteen days we marched two hundred and fifty miles under Maj.-Gen. A. F. Hart. He kept us at work so hard that if we had four hours sleep in twenty-four we did well. During the winter the grass is very dry and about eighteen inches long, and the slightest spark causes a fire. One day, as rear-guard, we did fifteen miles through a hilly district against a gale of wind which filled our eyes, ears and noses with sand, kicked up by the three thousand men and six hundred animals in front. As we reached camp a fire sprang up with flames over four feet high, and bore down upon us and the ammunition waggons. The oxen were removed barely in time, while we made a dash out of the way. By hard work the 2nd. Dublin Fusiliers removed the ammunition out of danger; but it was an uncomfortable experience. One morning we started at 2.30 and marched with only a few halts till 11.30—the last four hours in a broiling sun, and over a series of Beaver Hall Hills. We were again rear-guard, and every half-mile we passed a dying mule or ox. We had had nothing to eat since 4.30 p.m. the day before, and during the last two or three hours we had no water. We covered twenty-one miles, though we were on three-quarter rations—that is, we received weak coffee, weak tea, three or four biscuits, and about one pint of soup per day. The biscuits were the principal part, as the soup meat was bone, fat, hide or too tough to eat, and all the nourishment was boiled out of it. In garrison, however, we were well enough fed. Twice a week we received one ounce of rum, yet, unless wet or cold, I never touched mine, but would trade it for jam. It was wonderful how many men wanted to see me when “orderly men for rum” was heard.

The elements apparently tried to make our last month's stay as interesting as possible. Precisely at dinner time each day a sand-storm arose and loosened our tents. We were at Silverton, six miles from Pretoria, and had tents for the first time. A sand-storm is very much like a blizzard. Of course dinner was well-flavoured with sand; but it was not as bad as coal. On October 24th., 1900, we marched into Pretoria. Two hours before starting we received new uniforms. We had been wearing clothes conspicuous for the absence of very necessary

parts. Some men had no trousers; others would put on the legs separately, then pin them together. This was when we were only six miles from military stores; but then the officers were comfortable, so it did not matter to them how we were. The second night in Pretoria it rained, and having no tents we were rather damp when daylight appeared. The officers' and quartermasters' department had tents. In the latter the N. C. O. staff held a noisy celebration, aided by a good supply of whiskey, which we did not appreciate, especially as the staff were anything but popular. Accordingly some men quietly loosened the ropes, and the first gust of wind capsized the tent upon the drunken crowd within. Next morning two-thirds of the men went downtown without leave. Forty of us were "pinched" and received four days' confinement to barracks, which meant that from seven a.m. to five p.m. we had one hour's work to do in every three, besides answering several roll-calls. The Provost Sergeant, who was a Toronto policeman, had been famous for his contemptible, sneaking ways, and now that we were on our way home he was terror-stricken at what might happen to him. As a result our work was not very laborious, and tents were soon procured for us. A few nights later a storm arose, the worst, while it lasted, of any experienced by the regiment. We were camped on a slope, and two minutes after the storm began the water poured through our tents, while our blankets and kits floated gaily around the uncomfortable individuals standing in water over their boots.

On October 31st. we left for Capetown, escorting A Batt., R.H.R., and seventy-three Boer prisoners. C, D, E, F, G, H, Co.'s had left six weeks before, and were now near home. A, B, I, Co.'s were left, I Co. being composed of the "Draft," and members of the Permanent Force. I Co. had charge of the prisoners. We were packed like sardines in open cattle-trucks, anything but clean. The first day we had a slight shower. At night we stopped at Viljoen's Drift, O.V.S. About eleven o'clock the rain started, and poured till five a.m. We resumed our way and had a few hours peace till the afternoon, but as we entered Smaldeel a terrific storm arose, which kept up all night. I slept under a water-spout on the station platform. The rain kept up until the following night. By this time we were in a terrible condition, having had no opportunity to wash or even take off our boots. Our troubles ended when we reached De Aar, Cape Colony, where we remained twenty-four hours. A and B Co.'s were rushed on with the prisoners and battery, but I Co. was given a

rest. Tobacco and underclothes were issued, which, however, we were obliged to sell in order to get something to eat. Col. Otter and the Adjutant, Capt. McDonnell, refused to give us any pay. To get something decent to eat, I sold my tobacco, a pair of suspenders and a pair of socks to a Kaffir for thirty-six cents. All through the campaign the officers acted in this contemptible manner.

On November 7th., we reached Capetown, and immediately embarked on the "Hawarden Castle," in company with the Household Cavalry. We sailed in the afternoon. The meals which were furnished by the Company owning the steamer, of which Sir William Currie is the head, were vile except the bread and jam. We stopped at St. Vincent, Cape Verde Islands, for twenty-four hours, and on the 29th. landed at Southampton, and in two hours were in London. We lived at Kensington Barracks, and were well looked after, the meals being splendid. Of course we had beds; but the first night was one of extreme discomfort, for we twisted and turned and, indeed, some men slept on the floor. I never knew how uncomfortable a bed could be, which was owing to the hard things we had been accustomed to.

We remained ten days in London during which we had side trips to Windsor, where Queen Victoria reviewed us, and to Portsmouth, Brighton, and Woolwich. The Duke and Duchess of Argyll entertained us at luncheon in Kensington Palace, and King Edward and the members of his family reviewed us. Everybody treated us as though we were the eighth wonder of the world, and gave us as good a time as possible. But the Liverpool reception surpassed them all. While marching to the boat one old dame, from the wharf district, spat on her hand and brought it with a bang into mine, shouting: "Ye licked the Boers." We remained two days before sailing, and on the 13th. of December left on the Elder Dempster S.S. "Lake Champlain." Though glad to get home, it was, nevertheless, like parting with relatives, so kind had all been.

Our quarters and food were all that could be desired. After an uneventful voyage we landed at Halifax, December 23rd.—Christmas Eve. I was home and quite satisfied to be there, even though I could not get into my clothes, having gained ten pounds.

A. S. McCORMICK.

GRADUATE SOCIETIES.

Of the Graduates' Societies we have received rather scanty reports for this issue. The longest comes from the young and growing Association in British Columbia. The account of their annual banquet which we give below is from a western paper, and shows that distance has been powerless to weaken the devotion of these far-away graduates to their Alma Mater.

We would suggest that the secretaries of the various societies send us reports of events as they occur, so that we may have at hand a suitable body of material when the time comes to make up our compound account of McGill life at home and abroad. Historical sketches of the rise and growth of societies, their aims and transactions, would also be most acceptable. One such sketch we have received and are glad to give to our readers—that of the Ottawa Valley Graduates' Society.

The Montreal Societies are represented by the Alumnae, which sends its current report.

THE BRITISH COLUMBIA SOCIETY OF GRADUATES OF MCGILL UNIVERSITY.

There is none who has more reason to be proud of his Alma Mater than the graduate of old McGill.

In this province, as in other parts of the continent, the annual re-union of the "old boys," or "old girls" for that matter, because there

are ladies among the number who have passed through that great college, has come to be placed well up among the functions.

On Thursday evening last the graduates met in Nanaimo, where the meeting and banquet were held in the Wilson Hotel. There was a large attendance of graduates from different parts of the mainland and the island, among them being Dr. W. J. McGuigan, and Dr. J. M. Lefevre, of Vancouver.

The earlier part of the evening was devoted to the transaction of business, and officers for 1902 being elected as follows: President, J. M. Lefevre, M.D., Vancouver; Vice-Presidents, Dr. Drysdale, Nanaimo; Rev. W. L. Clay, Victoria; J. M. McGregor, B.A., Slocan; Secretary, W. J. McGuigan, M.D., Vancouver; Treasurer, S. J. Tunstall, M.D., Vancouver; Executive Committee, L. Robertson, B.A., Vancouver; Dr. Hart, Victoria; Dr. Manchester, New Westminster; A. Hill, B.A. Sc., New Westminster.

Dr. McGuigan, the Secretary, submitted his report for the past year. It was noted therein that the number of McGill graduates following the medical profession in the province was fifty-eight; graduates who took the degree of Bachelor of Applied Science numbered twenty-six; there were twenty Bachelors of Arts; two Doctors of Veterinary Science, and two Bachelors of Civil Law, who took their degrees in the colleges of the great Canadian University. The total number of graduates now in the province was about one hundred. The Secretary noted that the greatest patriotism always obtained among McGill graduates for their Alma Mater, and that the annual gatherings of the Society here had come to be looked forward to with interest among them.

It was decided that the next annual meeting should be held in Vancouver, in January or February next.

The following were admitted to membership: Dr. A. H. Gordon, Ladysmith; Dr. W. A. Wilkins, Bullion; Dr. Arthur D. Morgan, Quesnel; Miss Jeanette I. Radford, B.A., Seattle; Miss Ethel S. Radford, B.A., Seattle; Dr. Thomas Tunstall, Extension; Rev. J. A. Elliott, B.A., Vancouver; S. J. Willis, B.A., Victoria; Dr. Alfred Raymon, Seattle; Dr. George McDonald, Calgary; Miss Claire McGregor, B.A., Victoria; Henry W. Keith, M.D., Cranbrook; Arthur L. Kendall, New Westminster; William E. Newcombe, M.D., Ferguson, B.C.

The Secretary announced that the McGill Society is again offering a

\$50 prize for the best matriculation in June this year. Last year this prize was won by a son of the Rev. Mr. Scouler, of New Westminster.

In the evening, in the spacious dining room of the Wilson Hotel, the annual dinner was spread in most luxurious style. The table was artistically decorated with fruits and flowers, and souvenir menu cards, with button-hole bouquets attached, were beside each plate. Dr. McKechnie presided, while Dr. Lefevre, of Vancouver, occupied the vice-chair. Other members of the Society present were : Dr. McGuigan, Vancouver ; Dr. Gordon, Ladysmith ; Walter Hunter, B.A. ; Drs. William McKechnie, Drysdale and Hogle. The invited guests were : Mayor Manson, Dr. L. T. Shaw, Mr. Hugh Aitken, of the "Herald," and Mr. R. J. Burde, of the "Free Press."

Letters of regret were received from Dr. Peterson, Principal of McGill ; Dr. Roddick, Dean of the Medical Faculty (who requested a bumper for old McGill) ; Dr. Osler, Professor of Medicine in Johns Hopkins University ; J. M. McGregor, B.A. Sc., Slocan ; J. W. Powell, M.D., Victoria ; J. C. Gwillim, B.A. Sc., Nelson ; Dr. W. A. Wilkins, Bullion ; Dr. George McDonald, Calgary ; Dr. Tunstall, Vancouver ; Miss R. Watson, M.A., Victoria ; Mr. Joseph Williams, M.D., (Secretary of The McGill Graduates' Society of New England), Boston.

Many speeches were made during the evening, the toast list being as follows :

"Our King and Country"—Responded to by singing "God Save the King."

"Old McGill"—Walter Hunter, B.A.

"McGill Graduates' Society"—Proposed by Dr. McGuigan, responded to by Dr. A. H. Gordon, of Ladysmith.

"Our Professors"—Dr. R. E. McKechnie.

"McGill's Benefactors," proposed by Dr. Lefevre, of Vancouver—Dr. L. T. Davis.

"Our Class"—Proposed by Dr. McGuigan—Drs. Gordon, Hogle and Drysdale.

"The Province of Our Adoption"—Mayor Manson and Mr. H. Aitkin.

"The Legal Fraternity"—C. H. Beevor Potts.

"The Press"—R. J. Burde.

"Our Future"—Mr. John Shaw, Dr. William McKechnie.

"The Chairman"—Proposed by Dr. L. T. Davis—Dr. R. E. McKechnie.

"Our Host"—Proposed by Dr. McKechnie—C. Trawford.

The company disbanded in the small hours, with three cheers for old McGill, and the National Anthem.

(*From The Vancouver Daily Advertiser, February 11th., 1902.*)

THE OTTAWA VALLEY GRADUATES' SOCIETY OF MCGILL UNIVERSITY.

On March 20th., 1890, the first meeting of graduates of McGill was held at the Russell House, and a Society was formed. The purpose of the Society has been to help to attract students from this vicinity as well as to further the interests of the graduates and keep them in touch one with another and the University. In the hope of attracting students an annual scholarship has been given the most successful of those taking the June examinations. This was inaugurated in 1890 by Mr. J. H. Burland, who gave a prize of \$100, and since that time the Society has offered \$50 annually. The increase in the numbers attending the examinations is shown by the fact that in 1891 there were only five candidates. This number has steadily grown until at present there is an average of about twenty-five annually.

The local examinations have been held by the Society, and one or two of their members have been appointed to oversee and attend the sessions.

THE ALUMNAE SOCIETY OF MCGILL UNIVERSITY.

At the annual business meeting of the Society, held in December, the following officers were elected for the coming year: President, S. E. Cameron, M.A.; Vice-Presidents, E. Armstrong, B.A.; G. Hunter, B.A.; K. Campbell, B.A.; G. O. Ritchie-England, B.A., M.D.; Treasurer, I. E. Brittain, B.A.; Recording Secretary, E. Tatley, B.A.; Assistant Recording Secretary, I. Hurst, B.A.; Corresponding Secretary, E. A. Hammond, M.A.; Assistant Corresponding Secretary, J. Brown, B.A.

At the monthly meetings of the Society questions of current interest have been treated in papers or discussions on such topics as "Women in Politics"; "Tolstoi and his Country"; "Industrial Organization"; "The Modern Novel."

The Girls' Club and Lunch Room, which absorbs the more practical activities of the Society, is enjoying a prosperous season. The vicissi-

tudes of the past year have brought much anxiety to those in charge of the club, and even doubts as to the advisability of continuing it, but at a special meeting at the R.V.C. in February the vote was unanimously given for a new lease of life. A subsequent meeting held at the Club brought out much valuable testimony from the girls themselves, and strong requests for continuance. The present healthy condition of affairs warrants the hope that many years of usefulness are yet before the organization. A change of quarters is anticipated in May, but the removal will probably be only to another building in the neighbourhood, and the internal changes which may be found advisable will not be radical.

SUSAN. E. CAMERON.

JAMES R. THOMPSON, B.A., B.C.L.

In Memoriam.

Although the poet utters a truism when he says that death comes to every man soon or late, there are some who have to face their end at a time and in circumstances which give additional poignancy to sorrow. Such was the case with James R. Thompson. After a brilliant career in his Alma Mater, which led to the winning of a travelling scholarship in Law as its fitting close, he was stricken with mortal disease in a foreign land, whither he had gone to enjoy the advantages that the valuable prize he had gained, made possible.

James R. Thompson was born at Leeds, P.Q. He received his early education at Kinnear's Mills Model School and at Inverness Academy. Subsequently, he visited his uncle, the Rev. Dr. Thompson, at Sarnia, Ont., attended the Sarnia Collegiate Institute, and from it matriculated at McGill University in 1894. His course in Arts, begun in that year, terminated in 1898, when he took his degree with First Rank Honours in Philosophy. He then decided to take up the study of law, and at once began his course in the Faculty of Law. His exceptional ability showed itself in his obtaining First Rank Honours in the final examinations of each year. He graduated in the third place of the class of 1901, winning one of the Macdonald Travelling Scholarships.

Together with two of his fellow-scholars he went to Montpellier, in the south of France, to continue his legal studies, and there he would, doubtless, have added to the reputation he had already obtained, had his life been spared. We learn that the Rector of the University considered him a youth of much promise. But disease touched him fatally, and he died of an attack of typhoid fever, in the new Suburban

Hospital. All that skill and care could effect to save him, was done. He was attended by Dr. Grasset, a specialist well-known throughout a wide district ; while kind friends ministered to his wants and cheered him in his last illness. It is some consolation to think that his University watched him to the end, and buried him in a manner befitting one of her deserving sons. His untimely death brings deep sorrow to the circle in which he moved at Montpellier, and to the larger one in the country of his birth.

“ We drink the sweets of life and drink the bitter,
 And death to some would almost seem a boon ;
 But why to him, to whom glad life were fitter,
 Should darkness come, ere day hath reached its noon ?”

D. S. MOFFAT.

[P.S.—Almost at the moment of going to press we have received a copy of *Le Petit Meridional*, a Montpellier newspaper, in which the following account of Mr. Thompson’s funeral is given.—Ed.]

“ Les obsèques de M. Thompson ont eu lieu hier, à 2.30 p.m. Le cortège est parti de l’Hôpital Général et s’est rendu au cimetière protestant. Le deuil était conduit par les trois compatriotes du défunt, MM. Campbell, Place et Michaël, qu’accompagnaient M. Benoit, Recteur de l’Université, Mas, adjoint au maire, Flahault, professeur à la Faculté des Sciences, Cazalis, président de l’Association, Ronquel, conseiller à la Cour, le pasteur Moline. Une délégation de professeurs de la Faculté de Droit, en robe, ayant à sa tête, M. Vigié, précédait le cortège. Le nombreux cortège était composé de nos Facultés, du Lycée, de magistrats, d’étudiants.

Au cimetière, M. Vigié, doyen de la Faculté des Lettres, a adressé un adieu ému à celui qui était venu de si loin, dans un but si élevé, celui de se perfectionner dans la science, et qu’un cruel destin ravissait à ses parents, à ses amis, loin de la terre natale.

M. Cazalis, au nom de l’Association exprime les regrets de tous les camarades de Thompson, puis s’adressant à ses compatriotes, “Celui dont vous nous laissez la dépouille mortelle,” dit-il, “ne sera pas un étranger pour nous, car le poète l’a fort bien dit: ‘Tout homme a deux patries: la sienne et la France.’”

NOTICES OF GRADUATES.

[The Editors will be glad to furnish, on application, copies of circulars with questions to Graduates, in order that notices may be prepared for this department. Members of classes already represented may still be included.]

1870, Medicine. ROBERT FLEMING ROONEY, M.D. In general practice, first in Massawippi, P.Q., afterwards in Auburn, California. Married, 1873, Miss Amy A. E. French. Is a member of the California State Medical Society and the California District Medical Society. Has written many articles for both, as well as for the medical press, especially the "Occidental Medical Times."

1871, Medicine. JOHN HUGH MATHIESON, M.D. In general practice ever since graduation. Married, 1873, Miss Mary Mathieson. Now practising in St. Mary's, Ont.

1875, Applied Science. ARTHUR EDMUND BRETON HILL. 1875-77 engaged in making railway surveys in Nova Scotia. 1877, with Block House Mining Co., Cape Breton, and Constructive Engineer for Halifax and Cape Breton Railway. 1878, on Dominion Geological Survey. 1878-'90, on many railway surveys from Nova Scotia to British Columbia. 1894-99, designed and superintended construction of water-works for New Westminster, and filled several important offices in that city. 1899, in C.P.R. service, as Railway Surveyor in the West. 1902, Division Engineer on construction in Victoria, Vancouver and Eastern Railway. Married, 1890, Miss Jane Harden Graham. Has

published sundry letters in Nova Scotia and Western papers, and reports in the proceedings of the Institution of Civil Engineers.

1879, Medicine. GEORGE HODGINS GROVES, M.D., C.M. Has practised ever since graduation at Carp Village, near Ottawa. Married, 1883, Miss Fanny Monk, who died in 1893. Married, 1900, Miss Katie Godard. One son now at the Ottawa Collegiate Institute preparing for McGill. Has read sundry papers at the Rideau and Bathurst Medical Association. Is now Vice-President of the Ottawa Valley Graduates' Society, where other graduates of '97 are also to be found.

1880, Medicine. HENRY BEAUMONT SMALL, M.D. After graduation passed one year in London, England. Since then has practised medicine in Ottawa. Married, 1886, Miss Minnie Macpherson, of Kingston. Has published articles in the Reference Handbook of Medical Sciences, in Twentieth Century Practice of Medicine, and other journals.

1881, Law. WILLIAM McLENNAN, B.C.L. Has followed since graduation the profession of notary in the city of Montreal, being at the same time engaged in literary work. Married, 1883, Miss Marion Paterson, of Quebec. Publications: "Songs of Old Canada," (Dawson), 1886; "Spanish John," (Harpers'), 1898; "The Span o' Life," [with Miss J. H. McIlwraith], (Harpers'), 1899; "In Old France and New," (Harpers'), 1900. Also many short stories, reviews, magazine and newspaper articles.

WILLIAM ALEXANDER WEIR, K.C., M.P.P. Practising Law in Montreal. Married, 1885, Miss Adelaide Sayers Stewart. Has published editions of Civil Code, Code of Civil Procedure and Municipal Code.

1881, Comparative Medicine. PAUL PAQUIN, M.D. Professor of Comparative Medicine and Bacteriologist in Missouri State University, 1885-1892. In 1885 was sent to Europe to study bacteriology in Pasteur Institute and elsewhere, and remained abroad a year at the expense of the State. Graduated M.D. from the Missouri Medical College, 1887. Bacteriologist in the Battle Creek Sanitarium, 1893-94. Secretary of the State Board of Health, 1894-99. Practising medicine constantly since 1890. Married, 1889, Miss Hanna Belle Lyons, of Clinton, Iowa. Has published numerous articles on diseases common to man and beast; also essays written on the results of research, especially in tuberculosis.

Dr. Paquin adds to his record an amusing note relating to the time

of his student life in Paris. He was offered at that time a chair in a Turkish institution, and among the inducements held out were a title equal to that of Colonel, at least two wives and two horses.

1882, Applied Science. JOHN ALEXANDER LOW WADDELL, M.A. Graduated (*ad. eun.*), 1882. Later in the same year received, after examination, the degree of Master of Engineering. 1882-86, Professor of Civil Engineering in the Imperial University of Tokio, Japan. In recognition of work done there, and especially of a treatise "A System of Iron Railroad Bridges for Japan," was decorated by His Imperial Majesty the Mikado, with the order of the Rising Sun, with the rank of Knight Commander, 1886, returned to the United States to the Phoenixville Bridge Co. Since 1887 Consulting Bridge Engineer in Kansas City, Missouri. Since 1899 under the name of "Waddell & Hedrick." This firm has branch offices in New York City, Havana, Cuba and Melbourne, Australia. Mr. Waddell has designed and built very many important and costly railway and other bridges in the West, and has published a large amount of technical literature, notably: "The Designing of Ordinary Iron Highway Bridges" (1884), "A System of Iron Railroad Bridges for Japan" (1886), "Specifications for Steel Bridges" (1900), "De Pontibus, A Pocket Book for Bridge Engineers" (1898). Married, 1882, Miss Ada Everett. Member of the American Society of Civil Engineers, La Société des Ingénieurs Civils, of France, and the Rensselaer Society of Engineers, Associate Member of the Institution of Civil Engineers of Great Britain, and Honorary Member of the Kogsku-Kyokai, or National Engineering Society of Japan.

1882, Arts. ALFRED W. MARTIN. After graduation proceeded to the Harvard Divinity School, graduating 1885; M.A. (Harvard), 1886. Subsequently entered the ministry in the Independent Church. Now preaching in two Independent or Free Churches, in Tacoma and Seattle, Washington. Married, 1892, Miss Lillie Frothingham. Author of "Religious Reconstruction," (1 vol. 12mo.).

1883, Medicine. JOHN WILLIAM McLEAN, M.D. Has a prosperous practice in North Sydney, Cape Breton. Married, 1887, Miss Ada McKeen.

1884, Arts. GODFROI NARCISSE MASSÉ. Engaged in ministerial and educational work ever since graduation. Has been for fifteen years Principal of the Feller Institute, Grand Ligne, P.Q. Married, 1886, Miss Frances Epemten.

Law. FRANCIS McLENNAN. Follows the practice of Advocate in the City of Montreal. Married, 1896, Miss Alma Stuart.

Applied Science. JOSEPH ALFRED ROBERT. 1884-89 Topographical and Geological work in field and office in Nova Scotia. 1889-98, in Montreal. 1899, Metallurgical and Mechanical work for Lake Superior Power Co., Sault Ste. Marie. 1900-01, Mining and Exploration work for the Algoma Co., in Sudbury. Married, 1891, Miss Mary O'Donnell Winslow, of Nova Scotia. Publications : Papers and Maps on Nova Scotia and Sudbury Mining Districts.

EDWARD HENRY HAMILTON. Engaged as a Practical Engineer, one summer on Geological Survey in the Rocky Mountains. Assistant in the McGill Observatory, Chemist for Standard Oil Co'y's works.

1885, Medicine. FREDERICK N. BURROWS, M.D. In general practice in Bathgate, North Dakota. Married, 1884, Miss Frances E. Spearpoint. President State Board of Medical Examiners, 1890-94. First Vice-President, North Dakota State Medical Society, 1896. High Physician I.O.F., and State Representative to England, 1895.

DAVID JAMES GIBB WISHART. In Medical Practice in Toronto. Specialist on Diseases of the Nose, Throat, and Ear, Professor of Rhinology and Laryngology, Trinity Medical College, and The Ontario Medical College for Women, Toronto; Rhinologist and Laryngologist to Toronto General Hospital, Hospital for Sick Children, St. Michael's Hospital, Toronto Dispensary, and Girls' Home, Toronto; and the Gravenhurst Sanatorium for Consumptives. Senior Demonstrator of Anatomy, Trinity Medical College, Toronto, Secretary to Trinity Medical College, Secretary-Treasurer to the Ontario Medical College for Women, Toronto, Director of the Madawaska Club, Georgian Bay. Fellow of the Pathological Society, Member of the Canadian Medical Association, Member of the Ontario Medical Association, and Fellow of the American Laryngological, Rhinological and Otological Society. Married, in 1887, Miss Sarah Stanton Gunther, and subsequently Miss Rebecca Maria Gunther. Has published various treatises, notably : "Removal of Septal Spurs," "Observations on Adenoids and Enlarged Tonsils and their removal," "The Study of Anatomy," "The reduction of Turbinal Hypertrophies," "Fibrinous Rhinitis."

1886, Arts. JOHN MacDOUGALL. Missionary in Honan, China, 1889-92. Since that time in the ministry of the Presbyterian Church

in Canada. Present address, Spencerville, Ont. Married, 1889, Miss Frances Childerhose. Has published a few sermons and articles in the Presbyterian College Journal.

EDWARD ERNEST BRAITHWAITE. At Oberlin Theological Seminary, 1887-90, graduating with degree of B.D. Pastor Albert Place Congregational Church, St. Louis, Mo., 1890-95. Graduate student at the University of Chicago (Semitic Department), 1896-97. Pastor Tabernacle Congregational Church, Yarmouth, N.S., 1897-1900, during which time held office as Hon. Supt. Missions N.S. and N.B., and Chairman Congregational Union. Graduate student at Harvard University (Semitic Department), with Hopkins Scholarship ; A.M. at Harvard, 1901. Awarded Williams Fellowship at Harvard, 1901-02. Married, 1892, Miss Ida Minne Van Camp, of Cleveland, Ohio. Publications : Articles in the New York "Treasury," "Canada Congregationalist," and other papers.