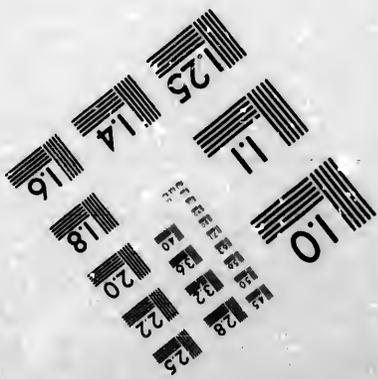
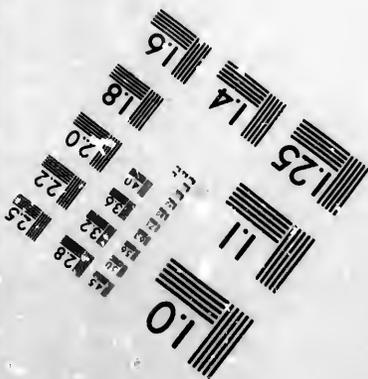
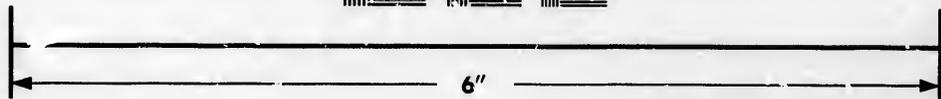
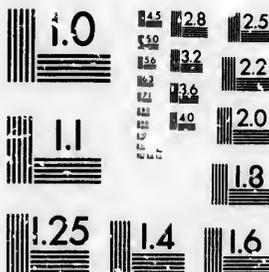


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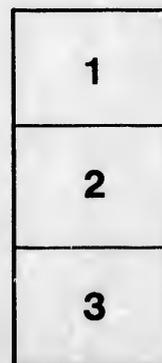
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A PLEA FOR THE EXTENSION
OF
UNIVERSITY EDUCATION
IN CANADA,
AND MORE ESPECIALLY IN CONNECTION WITH THE
MCGILL UNIVERSITY, MONTREAL.

By J. W. DAWSON, LL.D., F.R.S.,
Principal and Vice-Chancellor of McGill University.

MONTREAL:
PRINTED AT THE OFFICE OF JOHN O. BECKETT, SAINT JAMES STREET.

1870.

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 311

LECTURE 1

LECTURE 2

LECTURE 3

LECTURE 4

LECTURE 5

A PLEA FOR UNIVERSITY EXTENSION.

INTRODUCTORY.

The following pages relate to a subject which has employed the thoughts and energies of the writer, in conjunction with other friends of education, for the last fourteen years,—the erection and permanent establishment of a University worthy of this great city, and fitted to be the centre of the higher education for the English of the Province of Quebec, and to shed abroad the practical influence of scientific training and the amenities of literary culture throughout Canada. Montreal has already, as becomes its pre-eminence in population and wealth, distinguished itself by its liberality in the support of the higher education; and I cannot doubt that it will receive, at least, with patient attention, any suggestions that may be offered with reference to the extension and improvement of its own University,—the creation of its own wise liberality, the sharer of its fortunes, and the enhancer of its prosperity and renown as a centre, not only of wealth, but of liberal education.

The circumstances which induce a reference to this subject at present are the following. The University has continued, with a careful economy, to treasure up and use for the purposes of the higher education, the estate bequeathed by Mr. McGill, and the sums subsequently placed at its disposal by the liberality of the citizens of Montreal. It has now reached the utmost point of development which these resources will permit. The hope was at one time entertained that the pledges of public support, given to the Royal Institution by the Government of Canada, would have been redeemed; but after a long and ineffectual struggle, the University is obliged to admit, that by the New Constitution of the Dominion, and the subsequent action of the Legislature of Quebec, these questions have been settled in a way adverse to the interests of the higher education. The McGill University must now depend almost entirely for its support and extension on the City of Montreal; and it is for its friends in this city to determine whether, by being left to be stationary, it shall in effect retrograde, relatively to the increasing

demands of our modern civilisation, relatively to the progress of this city, and relatively to the advancement of Universities elsewhere. True wisdom would dictate that the decision should be in favour of extension. Nor does this imply any neglect of or competition with the interests of the religious institutions, the public charities, the elementary education, or the commercial and manufacturing enterprises of the city. The University can be sustained without injury to these; and in its nature it is fitted directly or indirectly to promote all these great interests to an extent much beyond that of the means which it may require.

In the hope that these views of the question may be entertained, I venture to invite the attention of the friends of education in Montreal, to the subject of University extension as dependent on themselves; and in doing so, I believe that I shall express the convictions of all those who have been my fellow-workers in this enterprise, and who feel that the time has arrived when it becomes a public duty again to call attention to the many avenues in the culture of mind—the richest of all the resources of nations,—from which we are at present debarred by hindrances which might easily be removed.

NATURE OF UNIVERSITY EXTENSION.

The extension of University Education may be viewed in several very dissimilar aspects. The expression may have reference to the number of persons who receive an academical education, or to whom its benefits may be accessible. In this sense it is most frequently employed in the continuous agitation in England respecting the possibility of increasing the number of students in the older Universities, and more especially in Oxford. Again, in speaking of University extension, we may have reference to the enlarging of the scope of collegiate study, or of the University examinations for degrees and honours. Such extension has taken place largely in the courses of the English Universities in our own time, and is still in progress. A third, consists in the increase of the number of Universities, such as that which we have witnessed in a late session of our Canadian Legislature, in nearly doubling at one stroke the number of Universities in Ontario, a province which already possessed too large a number of such institutions.

I need scarcely say, that I should be sorry to see this last kind

of University extension introduced into this Province, since I believe that the number of our Universities is already sufficiently great; but I shall proceed to enquire as to the degree of possible or desirable extension of our Universities, and more especially of that of Montreal, in the direction of enlarged scope of study and training, and in the direction of enabling larger numbers of students to avail themselves of the advantages of collegiate education.

In regard to its course of study, the McGill University has not limited itself within the narrow boundaries of the older collegiate education of the mother country. Until the late reforms introduced into the English Universities, their ordinary or imperative course of study had, under the influence of the Colleges upon the examining body, been narrowed down to little more than a very moderate amount of classics and mathematics, and shewed no tendency to incorporate with itself any portion of the more modern literature and science of our own time. In short, the Universities confined themselves to the work of training the mental powers of students to move along a very narrow and restricted track, and they trusted for their reputation to the eminence attained by a comparatively small number of honour men, while the ordinary students were allowed to leave the University with little enlargement of mind beyond that acquired in school.

It may be instructive here to enquire how so singular a result as the actual narrowing of a collegiate course, in the face of the immense growth of modern learning, was arrived at in the older English Universities. The story may be shortly told thus:—

In the middle ages when these Universities were established, their reputation was based on the labours of distinguished and celebrated teachers who occupied the professorial chairs. The concourse of students to the lectures of these men was so great, that the erection of Colleges and Halls for their accommodation became desirable, and wealthy and benevolent men undertook this work for the poorer students. At first, these foundations were merely a sort of better lodging-houses, with tutors to superintend the lives and studies of the inmates. But these Colleges were separate corporations, and in course of time they became influential in the University, and began to engross to themselves the teaching of the students, as well

as to control the examinations for degrees. In such circumstances, it was the inevitable tendency on the part of the Colleges to reduce the requirements for the degree to the range of subjects taught by their own tutors, or in other words to the possible standard of the weaker Colleges, which could only afford to teach a few of the more stationary or less progressive subjects. Thus the lectures of the University professors became less and less necessary for the ordinary students, who, by what was described by one of its opponents as a system of "cramming and partial teaching" on the part of the tutors of the Colleges, could reach the required standard. In defence of this system, it could be argued that proficiency in a few things was better than a smattering of several, and that the old established subjects which were inflexible and unchanging in comparison with the new sciences, admitted of more certain and rigorous examination-tests; but the real ground was the narrow desire of the Colleges to retain the work and the profits of teaching within themselves, and to reject all subjects which required any means and appliances not possessed by the individual Colleges. At Oxford, the statute of 1800 which for the first time established a rigorous system of University examinations for the degrees, found the power of the Colleges already in full exercise, and was moulded by it. But just as the College tutors had contrived to cut out the University professors, so a new class of men arose in consequence of this statute, and to some extent superseded the College tutors. These were the private tutors, and it is stated that in 1840 and '41 no less than one-fifth of the students availed themselves of the services of these "coaches" at an aggregate expense of £10,000 a year. About the same time Dr. Peacock, a tutor at Trinity College, Cambridge, in his work on the statutes of that University, states that a large proportion of the students resort to private tutors "to whom they pay on an average £40 a year." These teachers he says are "young and inexperienced and not competent to convey enlarged views;" and he attributes to this the paucity of works of learning and research proceeding from the University.

The extent of this remarkable narrowing or retrogression of the English Universities, may be learned from the fact, that in 1839, the Professors of Experimental Philosophy, Comparative Anatomy, Chemistry, Mineralogy, Geology, Botany, Geometry and Astronomy,

at Oxford, though many of them were among the most able men of their day, sent a petition to the Heads of Houses, in which they declared that their classes had dwindled in some instances to one-fifth of their former numbers, and that, unless some reform was introduced, their usefulness would be at an end. Thus, these subjects were actually dying out at Oxford, while the number of students was not diminishing, and while the subjects were growing in popularity and importance in the estimation of the extra-academical world. The Heads of Houses were sufficiently impressed with this portentous phenomenon to pass a statute requiring students to take, at least, two courses of professorial lectures, before passing for the degree of B.A. But, as a late historian of these events remarks, "several academical generations had already grown up under the same system," and in utter ignorance that there is any educational or other value in the subjects represented by the Professorships above named, while the collegiate and private tutors merely felt that their interests were at stake, and the statute was rejected by the Convocation. From this time, all the modern sciences, though nominally taught, were actually exiled from the University; and, with the exception of Mathematical studies, the same was the case at Cambridge.

In 1845, just at the time when the question of a University Commission was being agitated in Parliament, and when the rivalry of the new University of London was beginning to rouse the attention of the other Universities, the views of the cultivators of modern Science were thus expressed by Sir Charles Lyell, in an able resumé of the history of the Universities.

"The highest excellence in Literature or in Science, can only result from a life perseveringly devoted to one department. Such unity of purpose and concentration of power, are wholly inconsistent with our academical machinery of tuition. The panegyrists indeed of the modern University system in England, seem never to admit candidly this plain truth, that the colleges have no alternative in regard to the course of study open to them. Take any flourishing University in Great Britain or the Continent, Berlin for example, or Bonn or Edinburgh, where a wide range of Sciences are taught. Let the Students be divided into fifteen or more sections, without any classification in reference to their age, acquirements, tastes or future prospects. Assign to each section a separate set of teachers,

chiefly clerical and looking forward to preferment in the church and public schools, and from them select all your public examiners. What must be the result? The immediate abandonment of three-fourths of the sciences taught, while those retained will belong of necessity to the less progressive branches of human knowledge. Under conditions so singular as those now imposed on Oxford and Cambridge, I am ready to join their warmest eulogists and to contend that their plan of education is the best."

From this period, however, dates a new era of intellectual life in the English Universities; and, as evidence of its extent, we now have Oxford presenting in its new Museum and the Radcliffe Scientific Library connected with it, one of the noblest provisions in the world for the study of Natural and Physical Science, and offering its highest honours to the successful cultivators of those Sciences, while its ablest men are now discussing the means for giving to these and its other educational privileges a wider extension for the benefit of those who are now excluded from the University by the expensive modes of life, which have singularly enough resulted from that very provision of Colleges and Halls, originally instituted to aid poor students.

OUR POSITION AND HISTORY.

I have mentioned these things, principally to shew that the time when this University was re-organised, say from 1850 to 1855, was a time of strife between things new and old in collegiate education. We had before us the old English system, and the improvements then recently introduced or recommended. We had the methods of the Scottish, German and American Universities, which differed altogether from those of England, and also to a great extent from one another. We had the new University of London, and the Queen's Universities of Ireland, with their peculiar modification of the idea that a University should be an examining rather than a teaching body. We had the imitation of this system introduced into Canada in the new University of Toronto, and we had the chequered history of McGill itself, and the peculiarities which had been impressed on it by the conditions of its origin and existence.

In these circumstances, it would have been the easiest course to have fallen back on the limited curriculum of the English Universi-

ties, and to have established here a bare imitation of one of their smaller Colleges, with as much of University show, titles and ceremonies, as our limited means would permit. Such a course, if successful for a little time, would have necessarily failed in the end. The learning which we should have had to offer, would have been of that kind for which, however valuable, the palate of a new and young society has little relish. The laws and usages of this country gave none of that prescription in favour of such studies which exists in older countries. We had no mass of educated gentry trained in this method to support us. Even admitting that we had recognized this as the true ideal of the University, it would have been hopeless to have made the attempt.

Another course would have been to have taken as our constitution that of the newest universities of the old world, and to have vaunted before the country a magnificent and ultra-liberal programme of modern studies and options, regardless of all that had been before done here, and to the subversion of the older and time-honoured curriculum of college learning. This would have been dangerous with our limited means. It might, under favourable circumstances, have led to a magnificent if unsubstantial success. It would more likely have resulted in a gigantic failure.

The authorities of this University did neither of these things. Carefully cherishing every element of success already existing in the College, dropping only what seemed useless or harmful, they attempted to gather around the University an able and efficient staff of instructors, representing in the first instance the subjects most essential in a college course, and, in the second place, those more modern subjects, which by being more popular, and in some respects more practical, increase the value of the education given, and at the same time cause it to be more sought after. This being secured, mere forms and rules were at first left somewhat vague, that they might shape themselves according to the necessities of the case, as these should arise. At the same time, the University was connected, as far as possible, with the practical wants of life in this country, by its two Professional Faculties, its Normal School, its attempts in the direction of Schools of Agriculture, of Engineering, and of Practical Chemistry, and by its courses of Popular Lectures. Some of these at-

tempts have been discontinued, either because the need of them had ceased, or from want of students, or want of means, but others have been eminently successful, and all have contributed somewhat to the growth of the University.

Our next stage of progress consisted in giving to the University a local habitation, by the occupation of the original College Buildings above Sherbrooke Street, previously unused because of their distance from the heart of the city. This was followed in a short time by that most munificent act of Mr. William Molson, which has brought our buildings to their present state of completeness.

Our next stage has been the affiliation of new Colleges, and the consolidation of our regulations in a definite and determinate form, a work only completed in recent years. Our position in these respects is not precisely like that of any other University with which I am acquainted; but partakes of the methods of several, and seems eminently fitted to the work we have to do in this country. As an evidence of this, it has been imitated in several of the newer or more recently reorganized Colleges of British America, and some of the points which we have practically settled are now subjects of discussion in connection with the farther reforms now sought in the Universities of Great Britain.

The position which we have thus attained, with our three Faculties, numbering 26 professors and lecturers, and 300 students, our commodious buildings, our collections, our apparatus, and our library, is one which, when we consider the slender means at our command, and our absolute want of those public endowments which most Universities in other countries have enjoyed, may well excite our gratitude and our wonder. But my object, at present, is not to look back on what we have done, but rather to look forward to what we may and should do in the time to come, and on this subject I desire to explain to our friends my views as to certain objects which I place before me as desiderata, and which I should rejoice to see effected before I shall be removed from my sphere of active educational usefulness.

APPLICATION OF SCIENCE TO THE ARTS.

In the first place, I never cease to lament the small extent to which we have been able to promote the practical applications of science to art in this country. I am aware that it may be regarded

as our special sphere to deal with the more purely educational rather than with the practical business of life; but in a country so lamentably deficient in schools of art and applied science, and yet aspiring to success in those industrial arts which without such schools must be crude, abortive, and unsatisfactory, this would be a most useful department of labour for us.

I had hoped that when the government of this country was so far aroused to its duty in this respect as to appoint a Board of Arts and Manufactures in Lower Canada, we should soon have had effective art and science schools, and the authorities of this university were ready to co-operate fully and frankly in this great work; but these hopes have proved illusory, and as yet nothing permanent has been effected.

Our School of Engineering, successful in the number of pupils attracted to it, and calculated to confer great benefits on the country, was worried with professional and official opposition; and, unaided by the public, was at length suspended owing to the temporary financial embarrassments of the University. Our chair of Practical Chemistry, though filled by the most eminent Chemist in this country, has failed to attract our artisans or manufacturers to receive its benefits, and the same fate has befallen my own efforts to bring the principles of Scientific Agriculture under the notice of our farmers.

Some men may regard these efforts as failures, which should not be referred to here. For my own part I am not ashamed of them. Directly or indirectly, they have done good; there is not one of them which is not important to the material progress of this country; and there is not one of them which by us, or others, will not be at length successfully carried out. I do not yet despair of any of them; and I am prepared, should I remain in this University, to watch for the opportunity to revive any of them when favourable circumstances shall occur. In the meantime, they remain as projects inchoate and so far matured in their plans and methods, as to be readily brought to completion by the aid of any one desirous of stimulating through us the development of any of those arts to which they relate. We wait for some Canadian Lawrence or Sheffield to endow for us a Scientific School, like those of Harvard and Yale, which have contributed so greatly to the wealth and progress of New England.

The report of the Treasurer of Harvard, for 1864, states that Mr. James Lawrence, in addition to the gift of two thousand five hundred dollars, towards fitting up a laboratory, "fills up the munificence of his father" by the additional gift of fifty thousand dollars as a fund for the support of the Chemical and Engineering Departments of the Lawrence Scientific School. Still more recently, the sum of \$50,000 has been given to found a School of Mines in Harvard College, and an Institute of Technology has been founded in Boston with an endowment of half-a-million of dollars, two thirds of that sum being from private sources. I may mention in connection with this, that the General Government of the United States has, by a recent Act, offered to every State, which shall establish a College, where the leading object shall be, without excluding other Scientific and Classical studies, and including Military tactics, to teach such branches of learning as are related to Agriculture and the Mechanic Arts, a free grant of 30,000 acres of land for each Senator or Representative to which such State may be entitled. The State of Connecticut has bestowed its share of this grant on the Sheffield School of Yale College. The portion of the same grant falling to New York has, when supplemented by the generosity of a citizen of the State, given birth to the now famous Cornell University.

When we reason as to the causes of the growth of wealth in the United States, we should not forget their magnificent educational foundations, which send out annually hundreds of able men trained in the applications of mathematical, physical, and chemical science. These men alone would enable our American brethren to hold their own against the world, in the battle of the industrial arts and applied sciences, without any other advantage whatever. The want of such men must keep us far behind them, until we endow similar schools.

The mother country might furnish us with equally eminent examples of the value attached to practical science. I shall refer to one only. Owens' College, Manchester, is one of the newer institutions affiliated to the University of London, and much employed in science teaching. It was founded by John Owens, a merchant of Manchester, who bequeathed to it nearly £100,000. Its students, at first few, have risen to 173. It has also 324 students in evening classes, intended for the benefit of those who must work during the

day. Since the foundation of the College, £20,000 has been left to it in benefactions of various kinds, chiefly for founding scholarships and building the laboratory. An endowment is being subscribed to establish a Chair of Engineering in this College, and this by members of the Engineering profession itself, who have given nearly £10,000 to this object already. It is "considered desirable to raise a fund of £200,000 to extend the buildings of the College." Government has promised to give a sum equal to the subscription, and £60,000 has been already raised, with the hope that it will be increased to £100,000.

If, as is hoped, the Government of this country is about to supply one of our most urgent needs in this respect, by the establishment of a Mining School in connection with the Geological Survey, it will probably fall to this University, from its local position, to give much of the educational aid, without which experience elsewhere has shewn that such a School cannot be fully successful. In this way we hope that there may be a greater demand than heretofore for those facilities for scientific education provided here; and whatever aid may be given by the Government, it will in the first instance merely supplement the larger provisions made by the liberality of the friends of education in Montreal, and should in the sequel be a stimulus to the further exercise of that liberality.

LIBRARY, APPARATUS AND MUSEUM.

Another opening for extension occurs in what may be termed the external appliances of instruction. Twelve years ago this University was almost destitute of these, except in so far as the Faculty of Medicine was concerned. The library of the Faculty of Arts consisted of a few volumes of public records. The apparatus was of small amount, antiquated and out of order. When I enquired as to the collections in Natural History, the late secretary handed to me a small specimen of one of the most common corals in the limestone of this vicinity, and said that it constituted the museum. All this is very different now, and when the circumstances are considered, our advancement seems almost incredible. But we are still far short of what we might be. A library of six or seven thousand volumes, and the excellent room for which we have to thank Mr. Molson, constitute a good nucleus, but that is all. The admirable historical collection presented by Mr.

Peter Redpath and the classical collection presented by Mr. C. Alexander furnish examples in this respect well deserving of imitation. Mr. Redpath has filled one alcove with standard books of History. Others remain which might well be filled, by similar acts of generosity, with collections in Classical Literature, Mental and Moral Science, Physical Science, Natural Science, or in the literature of any of the Modern Languages.

In regard to apparatus for the teaching of Physical and Chemical Science, it is not necessary that I should go beyond the limits of Canada for examples worthy of imitation. Let any of our friends who may visit Quebec, examine the magnificent galleries in Laval University, filled with the most varied and costly apparatus, and he will see, that though our comparatively slender collection now embraces all that is absolutely necessary, and though it has been materially improved by the additions recently made through the private liberality of members of the Board of Governors, it is far from having attained a complete condition, and in the present rapid growth of Physical Science it yearly requires large additions. Under this head also, it may be mentioned as scarcely creditable to Montreal, that its University should want a good Astronomical Telescope. This would however require for its full utility not the instrument alone, but a properly fitted up Observatory and the means to sustain an Observer.

In Natural Science, a Museum sufficient to illustrate our present courses of Lectures has been accumulated almost without expense to the University, and we have access to the valuable collections of the Natural History Society, and the Museum of the Geological Survey. But in means to facilitate advanced study and original research we are still very deficient. Such institutions are things of recent growth elsewhere. Oxford continued to exist for 200 years, in the face of the continued publication of the Transactions of the Royal Society and of the growth of modern science represented in that publication, without recognising as a part of her educational system the systematic study of the works of God; and it is only within the last few years, that, waking up from that great practical irreligion, she has devoted the munificent sum of £30,000 to the erection of that noble Museum, which with its splendid provisions for collections, lecture-rooms and laboratories, and books in Natural and Physical

Science, is one of the educational wonders of our age, and which is open, not only to the students of the University, but to extra-academical or, as we should say, occasional students. Even now a movement is in progress to give to Cambridge a similar establishment, and to redeem its valuable collections in Natural History from comparative disrepair and confusion.

Scotland was before England in this respect; and the fine Museum Hall of the University of Edinburgh, with its rich collections in Zoology and Mineralogy, and the lectures delivered in these and other subjects in Natural History, were an attraction to students from abroad, at a time when no similar advantages existed in England. As a student, I enjoyed its benefits a quarter of a century ago; when I crossed the Atlantic in search of that training in Natural Science which was then comparatively of so difficult attainment. But the Edinburgh Museum has been found too small for the requirements of the present day. Breaking across an adjoining street, it has "annexed" a whole block of houses, and is erecting on their ruins a splendid building, one hall of which, the only one existing four years ago, when I visited it, is comparable in magnitude to our exhibition building, and has for its central specimen an immense skeleton of a whale, more than sixty feet in length.

On this side of the Atlantic, Harvard has, in addition to her former rich collections, organized her great museum of Comparative Zoology, which under the management of Prof. Agassiz is now in some departments one of the richest in the world, and which has received grants of \$20,000 annually from the State Legislature, in addition to its annual revenue of several thousand dollars from endowments. These great efforts have been imitated elsewhere, and they call for imitators here; where, though our collections in Natural History are very valuable and as accessible as it is possible for them to be, their extent is small and there are many important blanks to be filled. What may be termed a fortunate accident has recently given us an excellent and most complete collection in one important department. I refer to the admirable and extensive conchological collection of Dr. Philip Carpenter, presented by him on the most liberal terms to the University. We have been enabled to take advantage of this benefaction only by a subscription on the part of a number of our friends.

Before leaving this subject, I would mention our want of a Botanic garden. Our herbarium has been steadily growing, since its foundation in the liberal donation of the Herbarium of the late Dr. Holmes. But the want of a Botanic Garden, and more especially of a Conservatory, which might facilitate the teaching of Botany in winter, and familiarise our students with the forms of exotic vegetation, is severely felt. With us a Museum has preceded a Garden. The reverse order has usually been observed elsewhere. The Botanic Garden of Oxford dates from 1632, three years before the old Ashmolean Museum was built, and that of Cambridge from 1670; and both are still green, flourishing and useful.

SPECIAL LECTURESHIPS.

There is another department of educational usefulness, in which Canada might borrow a hint from the older Universities of the mother country. There are many branches of study in which regular instruction cannot be conveniently given in the College curriculum, and which are best taught, not by the continuous lectures of an ordinary professor, but by the occasional and vivid utterances of some enthusiastic advocate or specialist, who, if he cannot give systematic instruction, can attract attention to his subject—and shew forth its most important results. Provision for such subjects may be made by Lectureships, to be held by distinguished men, annually appointed. Such are the Bampton Lectures, at Oxford, on the Christian Evidences; the Reade Lecture, and the Hulsean Lectures at Cambridge. Such lectureships afford the means of new and ever fresh instruction, tend to promote the study and improvement of important branches of knowledge, and constitute prizes and distinctions to which the cultivators of subjects not ordinarily taught in schools and colleges, but of importance to society, may look forward as encouragements in their labours.

As topics which might thus be provided for, I may suggest the following:—

The Evidences of Christianity, and Biblical Literature in general.

Historical Subjects, as for instance, those bearing on the History of our own country.

Hygiene, and matters connected with Sanitary Reform.
Political Economy and Statistics.

Special Departments of Natural Science, as Meteorology,
Physical Geography, and specialities in the Natural
History of Canada.

Fine Art, more especially in relation to its introduction
into this country, and cultivation here.

Others might be suggested; and it is evident that this department of usefulness affords ample scope for the munificence of many benefactors disposed to endow lectureships in any of these subjects, open to annual appointment by the Corporation of the University.

ENDOWED PROFESSORSHIPS.

I shall close that part of my subject which relates to the extension of the course and means of instruction, by referring very shortly to that which is perhaps of all modes of promoting the maintenance and extension of the higher education the most important. I mean provision for the permanent support of professorial chairs.

Our leading Professorships should be permanently endowed. The Professors are, after all, the essence of the University. Only one of our existing chairs is endowed—the Molson Chair of English Literature. All the others are dependent on the general funds of the University, and therefore contingent on its financial state and management. I would wish here to say, as emphatically as possible, that in no way could our friends more effectually benefit the cause of education, than by the *Endowment of Existing Chairs*. Such endowments would set free portions of the general revenue for other purposes, and would ensure the perpetual support of a succession of competent teaching men in important departments of learning. Could our more essential chairs be thus permanently endowed, this would not only be the most assured guarantee for our continued prosperity, but would furnish means sufficient to allow us to provide for many of the important objects already mentioned, or to be referred to in the sequel.

It is proper to add that though our number of Professors in Arts is greater than that of most Universities in this country, yet

the range of study pursued here, necessitates that each chair shall cover subjects so numerous that many of our professorships would advantageously admit of sub-division, or at least of aid to the Professors, by means of tutors.

INCREASE OF STUDENTS.

I now turn to that department of extension, which relates to the increase of the number of those who receive the benefits of academical education. This end we have constantly kept in view, and have endeavoured to secure it by the reduction of our fees, and the granting of free tuition, under proper conditions; by not insisting on residence in the College buildings; by the admission of occasional and partial students; by granting exemptions to professional students; and by the affiliation of Colleges in other places, the students of which may have their examinations conducted simultaneously with those of McGill College by the University Examiners, and may attain to our degrees and honours. These measures have been, to a large extent, successful, and it is satisfactory to us to find that they have been commending themselves to educators elsewhere, not only in these Colonies, but abroad. Among the various schemes now before the authorities of the English Universities, for the reduction of their expenses and the increase of the number of students, there are proposals for arrangements for affiliation and non-residence similar to ours. In evidence of this, on one of these points, I may quote the following remarks from an able paper on this subject, by Dr. Temple:

“No other plan (than that of non-residence) holds out any real prospect of making Oxford cheap. In cases such as this, there is, you may depend upon it, no economy like freedom. Even the work-houses administered by guardians jealous of the rates, cannot keep paupers as cheaply as labourers can keep themselves, and the principle holds good for all ranks alike. A poor student left to himself, can choose his own privations, and fit them to his own ability to bear, can choose his own society, can contract his expenditure if he finds it too great—can do all this without exciting unpleasant remark. The same man in a College is compelled to share some expenses which he would be quite willing to dispense with; is to a certain extent drawn into extravagance, whether he likes it or not; always spending more money and often finding less comfort.” And he goes on

to show, that the benefits supposed to result from the *society* of the University, can be quite as well secured by non-resident students.

While however in the points above referred to, we have endeavoured to carry out a liberal policy, and to extend the benefits of the University as widely as possible, there are some kinds of extension which we have avoided as unsafe or improper, and others, which though desirable, our finances would not allow us to attempt.

While we have been ready to affiliate Colleges either giving an adequate course in Arts, or providing for professional studies, we have felt the danger of doing this at the expense of any lowering of the standard of education; and we have endeavoured in all our arrangements of this kind to preserve our standing in this respect, though, by allowing options and exemptions in taking the degree, we have given all reasonable opportunities to affiliated Colleges, even when unable to teach all the subjects for which we make provision.

On the other hand, we have resisted altogether that idea prevalent in some quarters, that the University should be not a teaching, but merely an examining body, and should receive students to its examinations without insisting on any superintendence of their training. This we believe differs as widely from the true function of the University as mere cramming for examinations does from real education. We hold also, notwithstanding some shallow objections frequently made, that the best examiners are actual teachers. It is easy to parade many plausible reasons why University examinations should be conducted only by persons supposed to be disinterested: but in practice, such persons of sufficient attainments are not easily obtained, especially in this country, and their examinations are often of a very defective character. We are desirous to secure the aid, when opportunity offers, of the Professors of other Colleges, and we should be glad, did our means permit, to associate with our Professors extra-academical examiners; but I hope it may be long before this University shall be induced by any specious theories to trust its examinations wholly, or principally, to non-professorial examiners, or to admit to its examinations for degrees, students not trained under its own regulations and supervision. To use the strong words of a late Lord Rector of Glasgow, "to degrade a University to the position of a Board of Examiners for Degrees, is to forget, not

only the history of Universities, but also what their true and primary functions are."

The history of Universities abroad, and our experience in this country, shew, that however desirable one examining body for all our colleges would be, it is necessary:—1st. That this body should centre in one strong and vigorous teaching institution: 2nd. That it should command the services of practical educators: 3rd. That it should require collegiate training, as opposed to mere cramming for the examinations: and lastly, that it should be independent of the narrowing influence of the weaker colleges.

AIDS TO STUDENTS.

I would now desire to invite your attention to one of the urgent wants of this University in the direction of its profitable extension. It has but two Scholarships, in the ordinary sense of the term, in aid of poor students, and neither of these as yet permanently endowed. What we have hitherto called Scholarships, only exempt the holder from the fees of tuition. They give him no money aid towards the prosecution of his studies. I know that the idea of thus aiding men to obtain a liberal education, is one of slow growth in a country like this. To found a Scholarship, say of \$120 annually, requires a considerable capital, and it shows no tangible result like a medal, a building, or a library. Its results appear only in the less showy, though more valuable, form of the labours of a succession of men going forth to occupy useful places in society; but it is to be observed that it thus, in the most direct manner, serves the interests of learning. Where employment is so easily obtained with a very limited amount of education, and where even the higher professions are open to men without the degree in Arts, it seems unnecessary to pay men to go on with an academical education. Yet even these considerations should, when rightly viewed, rather lead to a favourable conclusion as to the value of bursaries; and this more especially since the experience of all other Universities has shown that such foundations exercise a highly beneficial effect, not only in adding to the number of students and in aiding able men in narrow circumstances, but also, in raising the standard of acquirement of the students as a whole. It is true, that some difficulty exists as to the conditions on which such aids should be given. If given merely to aid poor men, they might often be

bestowed on those whose abilities are insufficient to produce adequate results for the expenditure. If given only to the ablest competitors, they may go to those who have, by reason of wealth or other incidental advantages, the best means of preparation. The real use of such aids, in so far as the individual is concerned, is to promote the education of young men of marked ability and in humble or indigent circumstances. In so far as the University is concerned, it is to raise the standard of preparation and acquirement. These results may be attained both in the Faculty of Arts and in the Professional Faculties, and these aids also afford a strong and healthy stimulus to the preparatory schools. In the older Universities, where such assistance has been liberally offered, though some endowments have failed to secure these benefits through injudicious or defective regulations, an immense amount of good has, on the whole, been effected. Without troubling you with the details of the precautions required, I may merely say, that experience proves that such scholarships should be open to general competition, and that this competition should be renewed at intervals, not too frequent, so as to reward persistent effort on the part of those less prepared at first. Probably in a course of four years' duration, the scholarships should be open to competition at the beginning of the course and at the end of the second year, and there might be some scholarships for competition in the first year only, or in the second year only. Judging from experience in this country, there is little danger that they would be sought or obtained to any injurious extent by the sons of wealthy persons, and there cannot be a doubt that they would secure the education of many able men, now prevented by narrow circumstances, from attaining that culture which would render their powers beneficial in the highest degree to their country.

Under the names of Scholarships, Exhibitions, Bursaries, and Sizarships, great numbers of such inducements to study exist in the Universities of Great Britain and Ireland, some of them being of very small value, others affording handsome annual revenues; some being open to undergraduates, others only to those who have taken a degree; some being general, others for particular subjects; some open to competition, either general or under various restrictions, others given as presentations without competition. As the subject

is one as yet little understood here, I may cite a few examples of the provision of such aids abroad.

In a late calendar of the University of Edinburgh, I find that there are in the Faculty of Arts 95 Bursaries tenable by undergraduates, and ranging in value from £4 10s sterling to £100 sterling, and in duration from 1 year to 4. There are besides about 21 Scholarships and Fellowships tenable by Masters of Arts, on various conditions, and ranging in value from £60 to £120 each, and in duration from 1 to 4 years. This may be taken as a moderate provision of this nature, in a University whose students in Arts number about 700, and the friends of the University of Edinburgh are now earnestly endeavouring to increase the number of Scholarships.

In Ireland, Trinity College, Dublin, in addition to 34 Fellowships held for life, and yielding handsome incomes, has four grades of annual aids to students, known as Studentships, Scholarships, Sizarships, and Exhibitions. Of Studentships, there are 14, tenable for 7 years, and with £100 sterling per annum. These are given by competition to what we should call B. A. Honour men in Classics and Mathematics. Of Scholarships there are 85 to 90 tenable by undergraduates, and also for three years after taking the degree of B. A. Their value may be stated at about £60 sterling each. Of Sizarships there are 30, tenable up to taking the degree of B. A. They are worth £35 to £40 each. Of Exhibitions there are more than 100. They are held for one year by students, and of different values, from say, £20 to £60 per annum. Thus there are in all more than 200 of these provisions giving substantial aid to deserving students. The annual expenditure on these objects is £10,000 in Scholarships, &c., and £30,000 in Fellowships.

In each of the three Colleges of the Queen's University in Ireland, 55 scholarships have been instituted by the Government, at an annual cost of £1,500 for each College, and these being found insufficient, a number of others have been furnished by private liberality. As the three Colleges of the Queen's University in Ireland, are all smaller than ours, in regard to the number of students, this may serve as a fair standard of comparison for our wants. The scholarships in the Queen's Universities are all annual, and they are so arranged as to aid all the Faculties,

particularly by promoting the taking of the degree in Arts by students intending to enter the other Faculties, an arrangement which would be very useful here.

It would occupy too much space to attempt even a summary of the vast number of inducements to study, offered in the way of Scholarships and Fellowships in the two ancient Universities of England. To give any idea of their number, of their conditions and adaptations to different descriptions of students, of their history and utility, and of the great men who have been cherished and aided in the opening of their career in life by their means, would afford material for volumes. The following curious estimate, however, of what has been called the stimulating force of these older Universities, may be given on the authority of Mr. Bennet, the President of Queen's College, Galway. He estimates this, for the Queen's Colleges, at what he regards as the exceptionally low rate of £6 sterling per head of the students; for Dublin, at £28 14s.; for Cambridge, at £66; and for Oxford, at £106 12s. Assuming this to be an approximation to the truth, it affords a vivid idea of the great prizes which, even within the walls of the University, it is thought desirable to offer as stimuli to industry and talent; and for the purpose of bringing out into its full development the best ability of the nation. The aggregate sum annually given in this way at Oxford in minor aids to students, has been estimated at £80,000. The stimulus thus given, is found also to act, not merely on those who strive for these aids, but necessarily also on those who strive for distinction alone, but who must in order to earn this, keep up with the winners of Scholarships and Fellowships. Nor are these struggles without their effects in after life. Five members of the late Administration in England, are said to have been First-class University men. The present Ministry could probably boast of nearly as many, and everywhere we find in the first ranks of British political, literary and scientific exertion, those who have carried off the prizes of the University career, and who in many cases have been enabled, by the aid of these prizes, to take their first steps in public life. The public career of our late Governor-General Sir Edmund Head, commenced with his election to a Fellowship in Merton College, Oxford.

When comparisons are made between Universities in Canada

and those in Great Britain and Ireland, it should be borne in mind that in the mother country learning is stimulated and encouraged by the most splendid rewards ; and success in obtaining these, marks a man for success in life ; while here the efforts and the sacrifices of the friends and benefactors of education have as yet only sufficed to give the student the means of seeking learning for its own sake ; and in so far as Lower Canada is concerned, the Province at large, as represented by its Government and Legislature, has not given anything for the permanent endowment of aids to liberal education, and may not unfairly be supposed to believe, that the higher learning in this country, and in the case of poor students, is a nuisance to be abated, rather than an object of public utility to be fostered and encouraged. All the more honour, therefore, should in these circumstances be given to the men who have prosecuted this good work, and to the earnest and diligent students who here pursue the path of knowledge without the prospect of the golden rewards, which in more cultivated lands would reward their efforts. They should be all the more highly esteemed. I may further remark that we must not suppose that in Britain the aids given to students by Scholarships are regarded as relics of bygone times, or as not requiring additions. New endowments of this kind are constantly being given ; and among other instances I see, that in the will of Dr. Whewell, the late Master of Trinity College, Cambridge, than whom no man was more fully acquainted with the present wants of education, handsome properties are bequeathed to the University for the foundation of Scholarships.

In the American Universities also, provisions of this kind have been made. Yale College has the means of annually aiding about 90 students, at an annual cost of nearly \$5000. In regard to Harvard College, I find the following information and appeal, in a late report of the President. He says :—“ Another subject to which it may not be amiss to ask your attention, and that of the public, is the provision made for indigent students. We have now thirty-seven scholarships. It is impossible to over-estimate their beneficial influence upon the College. They attract to the University a large number of the very best of our scholars, who otherwise would seek less expensive Colleges. They have raised to a degree which those not connected with the College can hardly appreciate, the general standard of scholarship and of character. They might be

multiplied with added advantage to the institution, and with unspeakable benefit to those whose proficiency they would sustain and reward. But there is a large class of deserving and needy students who fall short of the rank which entitles them to scholarships. Among those who become our best scholars there are some who, not having enjoyed the preliminary training of schools of a high grade, are not prepared for the first months of their college course, to become successful competitors with those who are thoroughly fitted to enter college. There are others who in rank fall but little below the successful competitors, and are fully their equals in industry and merit. There are yet others, destined to be able and useful men in after-life, who commence their education at a late period, and cannot, therefore, become as accurate classical scholars as those who acquire the rudiments of the ancient languages in childhood, who yet attest their mental capacity and vigor by their strong grasp of the subjects on which they are occupied in the last years of the college course. For these classes of students our general beneficiary fund presents a very inadequate resource, the dividend which each applicant can receive averaging not more than from twenty to thirty dollars per annum. Many of these students submit to severe privations, struggle on in depressing poverty, and often incur a burden of indebtedness which must weigh heavily upon them for many subsequent years. It is very desirable that there should be a fund,—a large fund if possible,—the income of which should be distributed, not with sole reference to the scale of rank, but in the joint ratio of merit and need. The disposal of the proceeds of such a fund might be intrusted to the President, or to a select committee of the Faculty, and left, without restrictive rules, to his or their discretion. A provision of this character would meet a want profoundly and painfully felt by those members of the Faculty who have been placed in confidential relations with individual students, whose own ability to render aid is limited, and who often know not where to look to private generosity for the requisite funds, or are reluctant to multiply appeals where appeals are never made in vain."

Every statement of this extract applies with still greater force to our Canadian Colleges, and especially to this, where not even the limited provision made at Harvard exists.

In Canada, such Scholarships exist in limited numbers in the

University of Toronto, which offers to its students 32 Scholarships of £30 each. They are founded on its public endowment, and have contributed largely to attract students to it. Queen's College, Kingston, has I believe received from its friends about 24 endowments for Scholarships, six of which are restricted to students in preparation for the ministry.

In the report of a commission on the University of New Brunswick, on which I had the honor of acting in 1854, with Dr. Ryerson and other gentlemen, under the auspices of Sir Edmund Head, though that University at that time enjoyed an annual income from the public funds of the Province of only £2,500, (which, however, it is only fair to state, is twice as much as this great Province of Quebec can afford to its three Universities;) we recommended, among other things, as essential to its successful operation, the establishment of thirteen Scholarships, of from £15 to £25 each. The Legislature exceeded our recommendation by establishing a Scholarship for each County in the Province, and six open Scholarships besides.

We can, as yet, boast of but two Scholarships, the Jane Redpath Exhibition, and that subscribed by the Board of Governors. In the present Session of the University, one of its friends has offered five prizes of \$50 each, for competition.

I would, in conclusion, earnestly commend this subject to the attention of our friends, as affording one of the most effectual means of aiding the University, and through it, the cause of good learning in this country. Had we, in this University, even 20 or 30 Scholarships of the value of \$100 or \$120 each per annum, with a fund of \$500 or \$600 for prizes, we could greatly stimulate the Preparatory schools, largely increase the number of students, and raise the standard of Scholarship throughout the Province.

INFLUENCE ON SCHOOLS AND ON EDUCATION GENERALLY.

To one other subject in this connection I must briefly allude, and that is the relation of the University to the schools. From these we derive our students, and we owe them all that we can do for them in return. In one direction, the University has become intimately connected with the Schools through the Normal School, which now has more than 300 teachers scattered through this country, and

has done very much to elevate the standard of general education. In another direction, we have given the stamp of a University guarantee to the education communicated in the higher Schools, by our University School Examinations and Certificate. The High Schools of Montreal and Quebec have alone, as yet, received this benefit, but we are very desirous to extend it more widely; and probably could do so had we means to defray the necessary expenses of the examinations, and to hold forth adequate rewards to those boys who might attain the highest places and who desire to pass through the College. Within the past fourteen years, we have also sent forth from the College, a considerable number of young men, who have devoted themselves to teaching, either for a time or permanently. The influence of the College has thus been beneficially impressed on the schools; and if we could attract to the College a larger number of young men from the humbler ranks of society, this influence might be greatly increased.

Farther, I believe that similar benefits might be extended by the University to the education of young women. I have no doubt that the more elementary education is now carried on in our many excellent private schools for girls very efficiently, and I have no wish that the University should assume its responsibilities. But there seems no reason why the School Examinations of the University should not here, as in the case of Cambridge and Oxford, include the pupils of schools for young women; and I think it would be quite possible for the University to provide lecturers on scientific and literary subjects, whose classes should be open to the pupils of all Ladies' Schools in the city, and whose certificates of attendance and examination should be given to such pupils. I do not propose either that young women should attend the ordinary college classes, or that, except in special cases, the ordinary professors should lecture to them. I would have special class-rooms, and in many instances at least special lecturers appointed by the University. Of course this is a purpose for which the constitution of the University does not permit its funds to be used, even if they were sufficient for it, which they are not. I only wish to intimate my conviction, that an opening for usefulness lies in this direction, which I have often wished to have the means of cultivating, knowing that in this country very few young ladies enjoy to a sufficient ex-

tent, the advantages of the higher kinds of education, and that the true civilisation of any people is quite as much to be measured by the culture of its women as by that of its men.

One recent fact which shows what may be done, is the foundation of Vassar College in the State of New York, an institution with an endowment of about half-a-million of dollars, given by one person, and which already has more than three hundred students admitted on a matriculation examination comparable with that of any of the Universities, and passing through a severe course of study, extending over four years. Efforts are also being made in connection with the University of Edinburgh, and by Professors in the sister University of Toronto, to promote the higher education of young women by courses of lectures; and there is, undoubtedly, much economy in the first instance at least, in employing, for this purpose, the teachers and apparatus already provided for the education of young men. I observe, in a late number of the Athenaeum, that at Cambridge, a committee of Professors and others has been formed for the purpose of instituting courses of Scientific and Literary Lectures to young women. All that we have, as yet, been able to do in this direction, is to admit young ladies of the city to some of the classes in the Normal School.

UNIVERSITY BUILDINGS AND GROUNDS.

I add only one word on a department of University extension which always excites the suspicions of the true educator, as one tending to absorb immense sums of money with but slender corresponding advantages. I refer to University buildings. We greatly need, and indeed must soon provide, a proper building for our Medical Faculty. That a body of students numbering 150 to 200, should have been yearly drawn to Montreal, to pursue their studies in one of the most important professions, and should be doomed to spend their days of laborious work in a building so contracted in all its accommodations, and so indifferently provided with modern improvements and means for securing the health and comfort of students, has been long a subject of sorrow to all true friends of the University. We require a new and much larger Medical School, near to the College buildings, and fitted up with all the more modern improvements in its classrooms and its laboratories. This building should also, be one credit-

able in its appearance, and which could be pointed to with pride as the home of the most successful and useful Medical School in this Dominion. Considering the incalculable benefits which, not only the University, but the city and the whole of this country have derived from the labours of our Medical Faculty, the citizens of Montreal should come forward liberally to aid the University in thus adequately lodging this highly important department of its work.

Other buildings the University will want in course of time. A larger Astronomical Observatory, and a Conservatory have already been mentioned. A large and well lighted building suitable for a Museum and a Gallery of Art, would richly pay the interest of its cost in the donations which it would attract from those who have valuable objects inaccessible to the public and exposed to the risk of fire. A Senate House with suitable Board-rooms, offices, rooms for the Faculty of Law, and fire-proof vaults for the preservation of the Records of the University, will also become a necessity. All these wants loom in the future, near or distant. All must be supplied that the University may keep pace with the growth of the demands for education and of this commercial metropolis of Canada.

In connection with these future buildings, I would mention one point which has long been an object of solicitude with me. The urgent demands of the work of the University have necessitated the gradual diminution of the McGill estate, until the portion which remains is now much smaller than the area which most other Universities in this country regard as necessary to their future growth. Must it be still further diminished? This cannot be avoided unless further pecuniary aid can soon be obtained; and once alienated it can never be recovered. This I regard as a most important point for the consideration of our friends, and we are now prepared to present to them plans which will provide for the permanent preservation of the remaining grounds for public use and recreation, along with all the requisite space for our future buildings.

SOURCES OF AID.

It may be said that the Government should aid us. But it is needless to conceal our entire want of confidence in such aid. The sacred promises made in former years by the Imperial and Local

Governments, and on the faith of which Mr. McGill gave his estate, have been repudiated. The General Government of the Dominion has, in my judgment, most unwisely, failed to take to itself those powers, with reference to the higher education, exercised by the Government of the mother country, and to some extent, as already stated, even by the General Government of the United States. The Local Government is necessitous, and the majority of its Legislature cannot be expected to feel much sympathy with an English University, after the long struggle which has been waged for nearly a century between French and English Education, and in which the Royal Institution and its University have been the chief bulwark of the latter. We must depend on the Protestant population of Lower Canada, and more especially of Montreal, for our maintenance and extension; and if once placed in a safe and independent and progressive position, we can, I think, trust to the falling in from time to time of benefactions and legacies to provide for further growth, including the supply of many of the less urgent of the wants above indicated. To place us in this position a capital sum of \$100,000 to \$150,000 added to the general funds of the University, or given in endowments of existing chairs, would suffice. This being secured, we could guarantee to the city the preservation of our College Park, the constant and growing usefulness of our Library and Museum, the continuance for ever of a staff of Professors capable of sustaining among us means of education not inferior to those enjoyed in any other country, and the permanence in this city of a University, its own creation, which could challenge comparison, in all essential respects, with any on this continent, and from which there should issue a continuous and increasing stream of highly educated young men, fitted to uphold the intellectual and moral eminence of the English of Lower Canada, in this country and throughout the world.

The University looks to those who now hold the wealth of this city in their hands, to follow up the good work begun by Mr. McGill, and to place it in this position. It can then look forward to the continuation of this work by its own graduates. They are yearly going forth into positions of usefulness, responsibility and influence. They represent the University in all parts of the Dominion, and the time must come when their good offices will flow backward to the

source whence they have themselves derived so much. The children must repay those who have been their educational fathers by enlarging and perpetuating to future times, the means of liberal education. Already we look to our graduates for aid, both directly and in stimulating and collecting the contributions of others, and I am persuaded that we shall not look in vain.

Hitherto, our Canadian Universities have been like the seed which puts forth from its own substance roots and tender leaves. Before they can be truly flourishing, they must draw nourishment from the soil itself and root themselves firmly in its bosom. I shall not feel that our work here has realised its full results, until I see endowments and benefactions flowing in from our own graduates. Then we may believe that we are truly rooted in the soil. Then we may expect to go on to the blossom and the fruit of mature growth. Then we shall see the good seed, sown by the generous friends and benefactors of this University, producing, not merely boughs and leaves, but the ripened fruits of academical learning, holding forth still richer benefits to succeeding generations of students.

Finally those who manage the affairs of this University, are not so unwise as to expect that we shall at once be enabled to attain to all the objects above indicated. Some of these, however, are very urgent, and progress however slow, would inspire hope. We are becoming old under difficulties which cramp our usefulness. Young men who should have enjoyed the benefits of a liberal education, are yearly growing up to manhood without this inestimable blessing. The loss sustained in this way cannot be repaired, and even in individual cases may be of incalculable importance to the country. We would therefore ask of the friends of education, an early consideration of this matter. On our part we shall at all times be ready to place at their disposal, all information which they may require, and cordially to co-operate in all arrangements which may tend to the security and permanent utility of their benefactions and endowments.

