

to the future, for the consummation of a lasting benefit to the graduates as well as to the University. Again, gentlemen, after having rejoiced for a moment in the position which you have attained, I will say to you, do not loiter, many things are yet to be learned, many fields to be explored—indeed you have entered only upon the threshold of knowledge, press on and win.

The Dufferin Medal for history was then given to Mr. MacLennan, Dr. Dawson remarking that it was the first time that it had been awarded. On this occasion M. MacLennan had been the only competitor, but the judges were unanimously of opinion that his essay was worthy of the prize.

The graduates in Applied Science having been accorded their degrees and diplomas

Mr. Wilkins, B. A., B. A. Sc., delivered the valedictory on behalf of the graduates in his section of the Art Faculty. He eulogized this department of study, and then proceeded to speak of the obstacles which graduates in it would have to encounter. There was the great and generous public about which so much was heard and so little experience. Then there were quacks who traded on a very small amount of capability. In addition, there was the obstacle caused by the divorce between capital and labour. There was the haste to get rich at all hazards, even were it by oppressing the poor, who in their turn, as far as possible, were disposed to oppress the rewards of study? One heard the usual talk about writing his stopped. More toleration was wanted on each side. What were the rich. The consequence of this was that manufactures were name high on the muster roll of fame, but that was seldom reached, and that only when we were hastening to the grave, or after that we had left the world forever. But the student could have his reward in the thought of what he was doing for the welfare of his fellow men. The essayist proceeded to speak of the delights which were to be obtained by the student from the open book of nature which he could contemplate with the eye of philosophy and faith.

Professor Armstrong then addressed the students.

PROFESSOR ARMSTRONG'S ADDRESS.

Gentlemen, Graduates in Applied Science,

The fourth Session of the Department of Practical and Applied Science, is to day being brought to a close, and the experiment commenced in 1871 has now ripened into an accomplished fact making it possible for this Dominion of Canada at last to say that she possesses a school in which the principles of Applied Science, as they bear upon engineering, and the manufactory, are systematically taught. In the autumn of 1871, our class opened with eighteen students, advanced the next year to nine and twenty, and for the last two years have been stationary at two and thirty, so that we can, I take it, with truth say that the work is established. The time that has passed since our inauguration is obviously too short to make it possible for us to point to any definite or marked influence, that the teaching given in this place, can yet have had upon the technical industry of the country; but that such will eventually make itself apparent admits of no doubt. In order to convince ourselves of this, we have only to glance at the condition of the industries of those countries (France and Germany) that showed the way in the establishment of such schools as this, at the time of the great London Exhibition in 1851, and compare it with what it was ten years later at the second London Exhibition, and afterwards at the one in Paris in 1867—a condition that has not failed to improve up to the present time. In 1851 the mechanical, and a great proportion of the textile productions of Great Britain, were seen to be, as they had hitherto been, in all that relates to design, finish and economy—"facile princeps." The next few years saw the very general establishment of Technical Schools in many States of the European continent, and in 1862 all the former condition of things was changed,—not that Great Britain had retrograded, but that the continent now appeared as her honourable rival. Five years again intervened before the Paris Exhibition in 1867, when it was acknowledged, not by interested judges, but by English engineers and manufacturers themselves, that this rivalry of the continent had then become more than dangerous, for it had positively out-stripped them in many branches of industry, specially in such as called for the display of a knowledge of scientific principles in matters of economic arrangement and practical aptitude, and of which Great Britain had for years enjoyed all but a monopoly. It should be remembered also,

that during the same period the construction of the Suez Canal and the mont Cenis Tunnel were carried to a successful issue by Continental engineers. That 16 years of such work as we are doing here should have resulted thus, ought to teach us in this country many and very important lessons, seeing how diligent our neighbours in the United States have been, of late, in the establishment of Schools of Applied Science. Although there are yet no conspicuous effects to which to point, it is encouraging to remember that already our "alumni" are scattered, *and at work*, over the length and breadth of British North America—from Newfoundland to the Pacific; and further, that wherever they have gone, their worth has been acknowledged, as is evidenced by the fact that further supplies of the same material are eagerly sought after. True then it is that our Technical School has been successfully established; but that is not all that must be done. It has manifested its need, it has demonstrated its efficiency, and has shown that there is beyond doubt a vast field of usefulness to be occupied either by it or some other. It demands, therefore to be made *permanent*, to be, in fact, the object of such endowments as will remove it from the position of a temporary and capricious existence to one of stability and endurance. That thing, *money*, which in some way or other is held by many serious people to be the root and origin of evil, but which may, on the other hand, be, doubtless, made the instrument of illimitable good, is *what we want*, and in *large quantities*. Let, therefore, those that possess it, and are harrassed by doubts as to its rightful office, be now persuaded at one stroke to unburden themselves of both the money and its contingent vexation! While the permanent endowment of what has already been done would itself be a noble act, what we ask is far more. We want suitable buildings, a workshop, museums, laboratories and scholarships, *in addition to increased teaching power*. The demands of an ever-increasing requirement render the claims of this latter item most urgent. And if the school is to maintain its efficiency, something must be done to meet them. It will be clearly seen, then, that no limit can be placed upon the sum of money the honourable the Board of Governors will, I am sure, be glad to receive in furtherance of technical education in this University, and of which moreover, *whatever be its amount*, they will render, I am equally sure, a satisfactory account in the sequel. But now a word about another affair which should also have much interest for us. I have called attention to the example set by France and Germany in technical education, and it happens that there is another and equally important point as I think in which it would be greatly to the interests of this country to imitate, not only them but every other European state, as well as India. I refer to the establishment of a system of competitive examination for the junior appointments in the public Works Department of the Dominion—an examination that would fence about the public service with such a guarantee of competence as would insure the entrance of the best rather than the more influential and less competent candidate. It must not for a moment be supposed that in this suggestion I seek to claim a preference for men of this or any other school. *Far from it.* We indeed should fear nothing in taking our chance with the rest, and if better men can be found should be the first to say, let them in the name of all that is reasonable—have their reward. All we ask is, that there shall be here, as elsewhere, a free and open competition for these appointments, and that a miserable system of political influence and pettifoggery expediency be for ever swept away. That the country would be the gainer by such a change admits of no doubt; and that the benefit would be felt in a quarter that all, *more or less*, can appreciate—namely, *the pocket*—is equally certain. No one has any conception, except those that have been employed on extensive works of construction, of the extent to which money under one system may be squandered, and under the other, saved, and if any one is not satisfied of this, let him look up certain state papers having reference to the old "regime" of the Public Works Department in India, and they will, I undertake to say, speedily banish his incredulity. And now, gentlemen, before we part never in all human probability to meet again as we do this day, before the link that has associated us together these three years as *teachers and taught*, be finally broken—let me, in the name of those to whom the direction of your appropriate equipment for the battle that now awaits each of you in your chosen path in life, has ever been a matter of earnest solicitude and weighty responsibility—let me, I repeat, say at parting a few words of encouragement and counsel. That each one of you, *if only he be true to himself in*