

GRADUATE SCHOOLS FOR CANADIAN UNIVERSITIES

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NOW that another World War is over there is time to take stock of the present state of graduate study in Canada and to make some estimate of what may happen in the next few years in Canadian universities. Much has been said and written about Canada's finding herself in the front rank of the nations of the world, and great emphasis has been laid on the material advances that have been made, principally in industry. There is a constant cry for more and more research so as to retain these gains. Back of it is the grim thought that many things in Europe on which we had come to rely are now gone. This country has emerged from the war with a great record in arms and is now forced to lay plans for ensuring her future safety by use of the best minds on which she can draw.

All these practical ends call for many more highly trained men, and the Universities are being urged to meet the need by turning out more graduates. Among these the keenest demand and the smallest supply has been on the higher levels, that is, among those graduating with a Master's degree, and even more so among those with the degrees of Doctor of Philosophy or of Science.

Though the writer is a university teacher and a scientist, he does not believe that the mere possession of a degree, however high, is a cure all for everything that ails us. There are too many men at the top in important walks of life who have never had academic training, for such an idea to be held seriously. Nevertheless, the way through the university is the surest one to bring out ability in a reasonably short time. Neither does the writer believe that science and economics are better subjects than the humanities, but it is a fact that they have more immediate practical value. In that very fact lies the danger of too narrow a training and background. A wide reading of literature and history, in and out of the classroom, is needed to ensure that along with the search for truth there goes a realization of the meaning of freedom and human dignity.

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Before going on, it is well to define what is meant by certain terms. Among universities only those are considered that have existed long enough for their general aims and purposes to have been clearly established throughout Canada. Only those that have consistently trained men at least up to the Master's degree are included. The degrees of Master of Arts and Master of Science are considered as being co-equal, and no distinction is made between the degrees of Ph.D. and D.Sc., although the former is much the more common and covers a multitude of subjects. Only degrees given in course are in question, the honorary ones being left to one side. Again, professional degrees, such as those in medicine and dentistry, are not under discussion for the present purposes, except incidentally.

The most reasonable way in which to view this subject is on a geographical basis. Fortunately the situation is fairly simple, and it is possible to take a bird's eye view of the whole country, omitting minor details. At the outset it should be stated clearly that this view is a personal one, based on first-hand discussions with men who have long held positions of honour and responsibility in university work throughout the whole country.

Starting at British Columbia, Master's degrees have been given for a long time, but Doctor's degrees in course have not yet been given. In Alberta the Doctorate in Science has been given for some eighteen years, but only about once in every three years and under many restrictions as to the number of years after the Bachelor's degree and as to work in other universities. In Saskatchewan no Doctorate in course has as yet been given, although a Graduate School has been set up formally. In Manitoba only the Ph.D. is given, perhaps only a dozen in all, in the history of the University. As in Alberta, this degree has been given only by some few departments strong enough to do so. In the four western universities there is a general feeling that some common policy as to the Doctor's degree should be adopted and meetings to that end have been held, without definite action having yet been taken. In general there is a tendency to act with caution and to restrict the degree only to those departments that are strong and have a definite bearing on the natural interests of the Province concerned.

In Ontario, the University of Toronto has given the Doctor's degree in many departments for a long time and probably

has given the largest number of higher degrees granted by any university in Canada. Toronto has borne much of the load in the past, and it is not mere criticism to state that there is a general feeling that the granting of higher degrees should be spread out among a larger number of universities. Indeed, there exists among a number of the staff at Toronto the feeling that it would be better for the University itself if higher degrees were not given indiscriminately in all departments, but were more rigidly restricted to those best fitted to give them. Queen's has been very modest in granting the Ph.D. degree, about half a dozen, mainly in Physics and Geology, making up the number. The degree has usually been given to graduates of other universities, and seldom to a Queen's man as a matter of policy to avoid inbreeding. The University of Western Ontario has not yet given a Doctorate in course, but this is being considered. The general feeling there is that the degree should be given only by a few departments, mostly in Science and possibly Canadian History. It is understood that MacMaster also has not given the degree.

In Quebec, both Laval and the Université de Montreal have for long given Doctorates in Science, Letters and Philosophy, and the Ecole Polytechnique has started giving the Doctorate in Engineering. Broadly speaking, the French universities have done splendid work in meeting the needs of the French-speaking people of Canada. Their system of granting degrees is modelled on that existing in France and is thus difficult to compare with that of the English speaking universities. A privately endowed institution, McGill, has been the only other major granter of the Doctor's degree in English speaking Canada, and its reputation, in some departments particularly, has been very high.

The Maritime Provinces have a large number of degree-granting institutions, of which only six or seven come into the present category. Dalhousie has up till now steadfastly refused to give a degree higher than the Master's. As far as is known, so have Acadia, Mount Allison and St. Francis Xavier. Kings, now associated with Dalhousie, has occasionally in the past given a Doctorate of Divinity in course, and it is believed that the University of New Brunswick has in the long past given the Doctorate of Philosophy. By their charters all or most of these institutions hold the power of giving the highest degree. That they have held the power in abeyance may be taken as

evidence of their innate respect for learning and a high standard of scholarship. It is also noteworthy that only one, the University of New Brunswick, receives substantial support from a Provincial Government, except in professional faculties or special fields such as Extension Work.

Much time could be spent in analysing the figures of the Dominion Bureau of Statistics giving the number of students taking graduate degrees in course in Canadian universities, but some basic facts may be simply stated. Up to 1942 the total number of those taking the Master's degree in Canadian universities each year was about four hundred, while the number of those taking the Ph.D. has slowly climbed up to about one hundred. These are certainly not large numbers for a country with the obligations of Canada. In attempting a geographical survey, the Bureau of Statistics considers all those taking graduate degrees, and hence such figures are made up largely of Doctorates in professional subjects. Even so the figures are illuminating. The Maritime Provinces and the Western Provinces, per million inhabitants, average only about one half of the number graduating in the two Central Provinces. Looking at the total graduate degrees granted per one thousand university students, the Maritime Provinces have eight, the Western Provinces eleven, Ontario thirteen and Quebec fifteen and one half. These figures (for the year 1943-44) show clearly that the central provinces are bringing to a higher level a much larger percentage of their university students than are the outlying portions of Canada, even allowing for the fact that students from the far East and the West go to the center in some numbers.

It is thus quite clear that there is an undue centralization of graduate study in mid-Canada. Elsewhere there is not an equal stimulus to higher study, as is given by the presence of large research institutions and museums, while the costs of living far away from home are greater. Thus it may safely be assumed that the other parts of Canada are not educating enough of their most promising student material. The feeling among the senior members of the university staffs throughout the whole country seems to be much alike, and may be summarized as follows. Every portion of Canada should be supporting graduate work. It is undesirable that students should obtain their whole training, both undergraduate and graduate, in the one institution. There should be a concerted effort to avoid centralization in any province or group of provinces.

There should be a greater exchange of students between the different universities—a condition that might best be described by the old word "migration." Not every department in a university should be encouraged to aim at giving the Doctorate; in fact it may be necessary sternly to curb an overambitious department. Those departments that do give the higher degree should bear a very close relation to the natural resources and interests of the community that the University serves.

Granted that this is not an unreasonable statement of the present situation, the question is—what should be done about it, and when and how. The writer is convinced that a great many of those best fitted to judge are of the opinion that the time has now arrived for making a start and that it is the duty of each major university to do its utmost to set up graduate work for its own section of the country. There is absolutely no room for rivalry, nor is there any sign that serious rivalry exists. It seems generally realized that there is room for everyone and that everyone must help the other to bring about the change, on the sole basis of what is best for the district and the country as a whole. There is a general feeling that we Canadians must stand on our own feet and train most of our graduate students within our own boundaries.

Although each Province must take its own lead, all would be helped by common understanding of each other's needs and aims. The machinery for arriving at a common understanding already exists in the Dominion-wide University Conferences and Learned Society Meetings, and in the regional University Conferences of the Maritimes and of the Western Provinces. Taken as a whole, senior university staffs form a group of very reasonable men who are conscious of their responsibilities and are not unaware of the practical difficulties of politics and finance. It is submitted that no time should be lost in giving the most earnest thought and effort to improving and extending graduate work throughout the country.

To implement this ideal, no great amount of extra university administrative machinery is needed, for the numbers involved will be not so great as to require a great increase in officialdom with the inevitable rigmarole of committee meetings and of forms to be filled in. What is really needed is the addition of a number of first-class men to the senior teaching staff. It is not believed that it would be impossible to find such men. It is true that a great many able university professors have been

attracted by high positions in the Government service and in industry, but it should be remembered that there are many compensations in university teaching that outweigh material disadvantages. This is particularly so where professors have the opportunity of teaching more mature students and of advancing knowledge in their own particular subject. The combination of teaching and research is better than over-emphasis on teaching alone or on research alone. Even within a university itself there are difficulties that will have to be faced in setting up a Graduate School, for those departments that are strong are likely to be strengthened, while the weaker ones are likely to be left to carry on a heavy load of teaching with little additional help. It is only human nature that these other departments should show resentment, for the time being at least, at what may seem to be unfair treatment. Fortunately, or unfortunately it is the way of the world that those who have get, and this holds just as well in a university as anywhere else. Sober consideration, however, should lead to the conclusion that it is impossible to advance uniformly on all fronts and that the weaker have more to gain in the long run by welcoming the strength of a few departments in the hope that in the long run others will share in the general advance.

In the above paragraph attention has been focused on internal university matters, because the writer's experience has been to a great extent along this line. There are, however, much larger considerations that bear on the need for an improvement—considerations that call for a breadth of view approaching that of statesmanship. There is on the one hand a great need for trained men in all parts of the country, and on the other hand the lamentable fact that too many of our able students have, for one reason or another, not been able to get the training that their abilities justify. This constitutes a problem that should appeal to thinking men in all walks of life, to the whole community whether it be industry or labor or government or the average citizen. It is a problem that is timely and that can be solved, given the will and the sympathy of all.

No mention has so far been made of whence the money is to come to achieve the desired end. This is as it should be, for dreams and ideals must come first and where there is no vision the people perish. At the present day it is impossible to obtain from private gifts enough to endow fully a graduate school, though much can still be done, even with the present heavy

taxation. Neither is it the primary function of the University President to find the money. It is too often forgotten that the President is supposed to be "primus inter pares" among his fellow teachers and the official spokesman for the university to the public. Such was the original function of the Head of the University, however much it may have been altered by stress of circumstances. In the last analysis it is the Board of Governors that has the financial responsibility in practically every Canadian university, and on the whole they have well lived up to their trust. They consider very carefully the mature advice of the university teachers, tendered through the President, and have seldom tried to force their views as to education upon the university they govern.

Where, then, are Governors to find the money except for what they can secure from the rapidly dwindling source of private gift. In Canada the constitutional responsibility rests clearly upon the Provinces. Their right to control education is one that has been as jealously guarded as has been the doctrine of freedom of teaching by the university. It is clear that the main part of the money needed to establish a good system of graduate schools in this country must come from taxation, mainly by the Provinces. The demands upon monies received from taxation are so great and so many special interests clamor for it, that adequate allocation for higher education can be expected only when enough of the public realize that such money is well spent and will repay handsomely in dividends. There is no use in expecting higher education to be treated in a very special way unless the case is well enough proved to justify it. The best way in which this can be done is by the examples of usefulness shown by university staffs and by the graduates whom they train. Fortunately the record on that score has been excellent.

There is one other possible source of money for graduate schools that might be made available, namely, Federal funds. There is no constitutional reason why this should be so, but it is believed that in its own interests the Dominion Government might find it advisable to pay additional grants for higher education under proper safeguards. The plea for Dominion aid is strong for such subjects as the Sciences and Economics. The demands of the Dominion Public Service for men with a broad training in these subjects are steadily growing, and the Dominion has already given much indirect aid in Science by means of scholarships and assisted researches, through the agency of the

National Research Council. The policies developed by the Council over a period of some thirty years have been amply justified by the results and have been supported by successive governments. In this way great assistance has been given to graduate work in all the universities. Many students have completed their work who would otherwise never have been able to do so, and an immense amount of research in both pure and applied science has been carried out by university staffs. However, a body such as the National Research Council cannot, and should not, directly support those mature scholars who must form the backbone of any graduate school. Yet it is upon these men that the Council must rely for all the manifold activities being carried out by it, and the same holds true for many branches of the Civil Service.

It seems fair, then, to raise the question as to why the Dominion Government should not directly aid the graduate schools throughout Canada for the purely selfish reason that it is in its own best interests to do so. Such a proposal is a somewhat delicate one, and would have to be made in such a way as to enroach neither upon the proper field of the Provinces nor upon the freedom of the universities. However, these difficulties are not insuperable and could be met with goodwill on all sides. It is too much, however, to expect the Federal Government to come forth with such an offer. The initiative would seem to be with the universities themselves, whether they be provincial or private institutions. If the universities know clearly what should be their aims in Faculties of Graduate Studies and if their needs have been adequately stated so that there is a general understanding of them on the part of the public, their case should be almost unanswerable.

An article in this *Review* should have something to say on the special needs and possibilities of the Maritime Provinces. Nowhere in the whole country is there a finer lot of raw material in the way of students than in these older parts of the Dominion with their long tradition and respect for education. We have never been rich, and our per capita wealth has steadily decreased since Confederation. The old, old story of exporting brains to the rest of the Dominion and the United States has gone on too long. If there were enough possibilities within these Provinces the great majority of our best trained men would not go away permanently.

In the past, such ideas have been wishful thinking, but there are signs that they may be much nearer reality. It is clearly recognized that if we are to survive the changes brought about by the centralization of manufacture in Central Canada during the war, and not go back even further relatively, we must use our native wits to make up for the lack of the resources of some of the larger and younger Provinces. Nova Scotia has set up its Research Foundation, and New Brunswick its Development Board, both of which have the active support of the Provincial Governments in their efforts to apply Science and Economics for the good of the Provinces. These bodies plan to make considerable use of the Maritime universities, and indeed there may be a danger that they may make so many demands upon them for "*ad hoc* research" that harm might be done to the fundamental training that is necessary before a man can take responsibility for an applied problem. The new regional laboratory of the National Research Council will also be of great help to the Maritimes and carry on a step further many of the projects initiated and surveyed by the Provincial bodies. Other organizations as well have been set up in the Maritimes for special purposes. Apart from the ordinary work of the Departments of Agriculture and Mines and Resources, there are, among others, the Fisheries Stations at Halifax and St. Andrews, N.B., and the Naval Research Establishment at Halifax. All of these will provide a considerable body of skilled men working in the Maritimes, close to the scene of activities, instead of doing long distance research centered around Ottawa. Such a body of men cannot help improving the general attitude and understanding of the value of Science to these Provinces. What is more important is that they will be the means of setting up new industries and utilizing what are now waste products, so that there can be an increased prosperity in the East.

It has often been said that the Maritimes have been cursed with too many universities. Certainly there are so many that it is beyond economic possibility that all could develop full-fledged graduate schools. The possibility of university federation is an old subject that came close to realization in the early 1920's with the Report of the Carnegie Foundation. For good or ill this plan fell by the wayside and all the Maritime Universities, with the exception of King's, decided to remain where they were. It is possible that this scheme was premature; at any rate it seems now certain that none of the remaining universities will move entirely since there have been extensive

additions of fine university buildings in all of them. They do have the advantage of bringing a college education nearer to the homes of their students and at a minimum of cost.

Perhaps the attempt at federation has not been altogether a failure, for there has arisen much more cooperation between the various universities than existed prior to the Carnegie Report and perhaps there has been a diminution of the intense rivalry and competition that used to exist. As far as education up to the standard of the B.A. or B.Sc. is concerned, it may be taken for granted that all the Maritime colleges will continue as before, barring unforeseen circumstances. Their roots go deep and they have always had loyal and fervent groups of supporters, with local pride playing an important part.

There are few closely familiar with the Maritime universities who would extend the above statements to cover the Master's degree, let alone the Doctorate. There is a general feeling that each university should avoid trying to give even a Master's degree in all and sundry subjects, although each university would probably have one or two or more departments that for special reasons could give the Master's degree in these subjects. Furthermore there is a feeling that these need not overlap and that there should be a migration of students from one university to another for subjects in which the latter could give the better training. Stern necessity is forcing us all to the view that this is the only possible solution.

When it comes to a graduate school giving the Doctor's degree, the brightest prospect is offered by Dalhousie. It is probable that the University of New Brunswick would not fully agree with this, and it would in all probability wish to keep in mind the possibility of a full-fledged graduate school for New Brunswick. However, its situation in a small city will militate against this, although there are certain special advantages, particularly as regards Forestry.

In Halifax there are centralized a number of things that go together to make up a university, such as law, medical and dental schools and law courts and hospitals and the scientific organizations mentioned above, as well as other educational institutions. Together these form a very considerable intellectual colony that has played a great part in the life of the city and the Maritimes generally. From them there could be drawn a number of special lecturers who could give highly specialized courses in the graduate school by mutual arrangements with these other bodies. However, these men alone cannot possibly

constitute a graduate school. They have other duties and they are paid by and under the control of other organizations. They cannot be under the control of Dalhousie University but can only lend their good offices by the good will of others. There remain to be found the ways and means for getting a nucleus of full time senior staff to make up the graduate school. Some of these ways and means have been indicated earlier. They are applicable in all parts of Canada, and perhaps with special force in our own Provinces.

Finally, it may be in order to summarize the opinions expressed to the writer by several acute observers of the university scene in Canada. They were to the effect that, apart from one or two strong graduate schools in central Canada, by far the brightest prospects were offered in Halifax and in Vancouver. These men were thinking not only in terms of material advances, although those in Vancouver have been great and those in Halifax much greater than is generally known. The thought was rather that there are certain intangible things about a seaport that make for a broader view of the world than is possible inland. Halifax has known two centuries of peace and war, and the whole outlook of the Maritimes has been set by contacts with the far places of the earth. These Provinces have a stable homogeneous population and a high tradition and respect for education. If they can only realize the fact there are bright prospects for a greater future through the establishment of one of the really first class Graduate Schools in Canada, with all that that implies.