

## CAN CANADIAN EDUCATION LOOK TO A BRITISH EXAMPLE?

By ALEX. M. ROSS

"There is scarce a common trade which does not afford some opportunities of applying to it the principles of geometry and mechanics, and which would not therefore gradually exercise and improve the common people in those principles, the necessary introduction to the most sublime as well as to the most useful sciences."

SO wrote Adam Smith in 1776. It was an early approach to the problem of technical education, and one which undoubtedly influenced men like Dr. George Birkbeck, who, in 1779, made it possible for workmen to attend his lectures in "mechanical and chemical philosophy" at Anderson's University in Glasgow. His example led eventually to the founding between 1821 and 1825 of Mechanics' Institutes in industrial centres like Glasgow, Manchester, Huddersfield, Leeds and London. The Institutes were to give the workmen "a knowledge of underlying scientific principles", and the employer's task was "to train up his recruits in workshop methods". In addition to providing lectures and study classes, the Mechanics' Institutes had reference libraries. By 1850 there were 610 of these Institutes in England and twelve in Wales; their membership was over 600,000.

From Britain the Institutes spread to British North America. As in Great Britain a book collection seems to have formed the basic study unit of these Institutes. Despite early successes and the generous vision of the founders, the Mechanics' Institutes failed to establish themselves. In Britain some of the Institutes evolved into technical schools and colleges, others into public libraries and others into clubs and billiard saloons. After 1889 the state took over technical education in Britain, and in 1895 the Ontario legislature changed the name Mechanics' Institute to that of Public Library. And so it happens that the visitor to the Port Arthur Public Library in northern Ontario or to the library of the Manchester College of Technology in Lancashire can easily find on the shelves of either library books bearing a plate with the name Mechanics' Institute upon it. Libraries may be found, for example, in Saskatchewan bearing the name Mechanics' and Literary Institutes, and in Montreal there is the well known Mechanics' Institute Library. The Mechanics' Institutes throughout the middle years of the nineteenth century did a great deal to satisfy

the cultural needs of people for whom further formal education was impossible.

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In the scramble for men with "know-how" to man the new machines born of the industrial revolution many educationists both in Britain and America lost sight of the real purpose of education and concentrated too much upon the utilitarian side of things. It is only in recent years that higher technical education in the United States, Britain and Canada has become concerned with broadening the base of technical studies. In an effort to restore the balance we are bringing courses on the history and philosophy of science, on economics, English studies, and political science into applied science calendars. In Britain, libraries in some technical colleges are taking on a new look, and an Association of Technical Institutions' publication *Libraries in Technical Colleges* is further proof that the Association is aware of the importance of libraries. The founders of the Mechanics' Institutes, however, needed no one to justify a library to them.

But the new technical colleges achieved much more than did the old Institutes. The need for Britain to keep ahead of foreign competition after 1851, the influence of men like T. H. Huxley and Herbert Spencer, Quintin Hogg's development of evening institutes in London, the indifference of the ancient universities to the new technology, all helped to bring about in 1889 the Technical Instruction Act by which the local authorities had power to levy a rate to provide technical education. After 1900 the number of technical colleges grew rapidly; in 1952 there were 493 in England and eight Polytechnics in London. Of the 493 colleges some sixty in England and Wales and six in Scotland provide higher technological education. In Britain today nearly all the technical colleges receive their funds from local education authorities.

The courses offered in the technical colleges may be grouped under such headings as Trades, Ordinary and Higher National Diplomas and Certificates, London University External Degrees, College Diplomas and Associateships. Degree courses are offered in subjects like Pharmacy, Architecture, Commerce, and Textile Chemistry. The Higher National Diplomas or Certificates are comparable to a university engineering degree. A graduate holding one of these certificates or diplomas is able eventually to become a member of a professional engineering society. The Diploma courses are for full-time students and the

Certificate courses are for part-time students. In 1952 there were 6,311 Higher National Certificates awarded and 250 Higher National Diplomas. At the Ordinary level these totalled 11,674 and 253 respectively. The Ordinary National Certificate and Diploma represent approximately a full year's less work than the Higher.

British technical college students fall into one of three groups: full-time, part-time, and evening. Their numbers are large. The Ministry of Education under the heading, Further Education, 1951-1952, shows that of the 2,418,946 students attending all establishments there were 2,031,097 evening students, 333,832 part-time day students and 54,017 full-time students. Thus only one student out of forty-five attends full-time day classes.

One of the most interesting and vital movements in English education is that known as part-time day release whereby industrial firms release employees for education during their working hours. This release involves no loss of pay and usually amounts to one day a week. The student then is expected to attend evening courses one or two evenings a week. In 1951-1952, 334,304 men and women were released to attend courses in further education given usually in the technical colleges. Of this number 10,597 were enrolled in university courses, and of these in turn 7,302 were taking courses of a general educational nature: art, music, mathematics, modern languages, science, general certificate of education, etc. In addition to these students, industry released another 12,678 to attend Art Establishments giving courses in printing, pottery, silversmithing, furniture, plastics, photography, interior decoration, architecture, jewellery, etc. Each year industry shows its confidence in this scheme by releasing ever larger numbers of its employees.

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The attitude of Canadian educators may well turn more and more toward the British technical college as an institution which offers Canada a way out of educational difficulties which may appear within another ten years' time. Dr. Sidney Smith, President of the University of Toronto, has emphasized in his *President's Report*, June, 1953, the effect which the post-war birth rate in Ontario will have upon university attendance by 1970. He feels that any attempt on the part of the universities to cope with double their present enrolment can only mean lowered standards. Dr. Smith suggests "that the provision of

alternative institutions for the training of students beyond Grade XIII should be considered before the crisis is upon us", and he further suggests that the establishing of technological institutes and junior colleges may avert the crisis. The technological institutes would give perhaps the first two years of engineering, and also provide suitable technical training for the large numbers of students who regularly fail university engineering courses.

"I do not suggest for a moment", says the President, "that we attempt to reproduce in Canada the educational pattern of the United Kingdom; I merely point out that within a decade it may become a matter of necessity for us to come closer to it." This is a very interesting statement, for a year's study of the British technical colleges in Britain has convinced me that we can learn much from them, even though we do not reproduce the system here.

We must, however, study not only the strength but also the weakness of the British system. Their faults are often a kind of inheritance, the results largely of the nineteenth-century struggle between the new Science and the old traditional education based on the classics and buttressed by the support of the Established Church. The technical colleges are proof of the failure of the Industrial Revolution to produce a machine age culture. In somewhat the same way as many Canadians esteem High School graduation preferable to Vocational School graduation, so many British consider the Grammar School and University preferable to the Technical School and the Technical College, which are not socially as acceptable as the older institutions. We must not neglect to study this division between art and technics, for it is a kind of symbol of a fracture which runs throughout modern life.

Some of the reasons for this division in Britain are obvious enough. In the first place the British technical college, so often tucked away in the heart of a grimy industrial centre, is simply unattractive. It presents thousands of part-time students with nothing but a narrow technical training so that they can do a job of work upon graduation. Seldom has a technical college adequate recreational facilities for its students, seldom are the library facilities really adequate for the needs of the college. Indeed you can find one large technical college in England which has no library at all. The colleges often lack floor space, technical equipment, suitable lecture rooms, sufficient office help and adequate facilities for carrying on research. The staff usually carry heavier teaching loads than do university personnel.

It is therefore more difficult for the technical colleges than for the universities to attract able men to their staffs.

Some prominent English educationists like Lord Eustace Percy have told me that the technical colleges would be much better off if they were not dependent upon the local education authorities for much of their monies. This local expenditure puts control into the hands of local municipal bodies and too often their influence hinders the progress of technical education. I know of the principal of a large new technical college in an old industrial city who had to argue with the local authorities to convince them that a library was even necessary. The technical colleges in Britain long for the sort of financial freedom which the universities have by the quinquennial grant from the University Grants Committee.

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This problem of control will be an important issue in Canada if junior colleges or technological institutes become a feature of our educational system. British experience shows that the local boards are seldom able fully to comprehend the needs of a technical college, and can on occasion draw the purse strings embarrassingly close. But at least the colleges are free from the centralizing influence of a provincial department of education with its perennial inspections, its awkward method of book-keeping, and its equally awkward regulations which must apply to a wide variety of institutions regardless of differences in function.

In one respect the British are fortunate because they have worked out through professional engineering bodies, the City and Guilds of London Institute, and the University of London, a system of external controls by which standards recognized nationally are set. Within this framework the technical colleges have a fair amount of freedom in planning their courses. In Canada the junior college or technological institute could be a provincial body like the Lakehead Technical Institute, but one real difficulty with this arrangement is the yardstick of excellence, which of necessity must be that of the department of education about whose Grade XIII standards the universities are already complaining. Our colleges and institutes should not be lumped in with secondary schools. The departments of education think too often in terms of dollars and cents and not often enough in terms of academic excellence. If the junior college or technological institute is to have as one of its functions the giving of

two years of Arts and Engineering, then surely the universities and not the provincial departments of education are the bodies who should have the controlling voice about academic policy. Much is sacrificed when an educational body responsible for training men and women becomes dissociated from the result.

Another alternative exists. Are the junior colleges and technological institutes to be merely reservoirs to take all those students who fail to leap the high academic hurdles guarding the entrance to universities? This question is often an issue in Britain. The technical college authorities feel that it should be possible for a good student to cross over to the universities and gain credit for work which has been done in the technical college. This switch is often difficult to make, for the universities guard very jealously the degree granting privilege, and applied science students graduating from the technical colleges must be satisfied with a certificate or diploma. These students differ, too, in that most of them have not had the benefits of the more leisurely life which their opposite numbers in university have had. With the exception of Loughborough College students, they have never known the benefits of residential life. It will be a great pity if this kind of inequality is to brand the future graduates of Canadian junior colleges and technological institutes. Very often the technical college student is more in need of the benefits of a well appointed college than is the university man who usually has a better home background.

If Canadians want to ensure that their future technical colleges have the maximum educational prestige, they should place trades courses like bricklaying, plumbing and wood-working in vocational schools and keep only the higher technical courses in the college calendar. A technological institute is neither a technical institute nor a vocational school. Each has a separate function and a vocational school student does not fit easily into the more rarefied air of a technological institute or technical college.

If the Canadian junior college is to prepare students to enter, say, the second year of Arts or Engineering courses at universities, another problem needing attention concerns the variety of entrance requirements for the different university faculties. Those in turn vary from university to university. A junior college will not be able to give a wide variety of undergraduate courses to prepare students for all the specialized studies they may wish to enter. Will the universities be able to agree on a common core of first-year subjects? This problem of first-year requirements presents fewer difficulties in engineer-

ing where there is greater uniformity than in Arts. Much could be learned perhaps from an examination of the Foundation Year prescribed by Stoke University College, which is one of Britain's newest colleges.

The British technical colleges in past decades have been justly criticized because of the illiberal nature of their curricula. "Most useful" their studies certainly were, but "most sublime" is a quality which passed away with the vision of the founders of the Mechanics' Institutes. Educational change, however, comes slowly and the shortcomings within British technical education are just now being widely discussed. Even industry now demands that a technical college graduate have something more than just "know-how". The educational findings of the Anglo-American productivity teams, the recommendations of government commissions, the debates in the House of Lords, June 11-12, 1952, the pronouncements of educationists, all point up the need for liberalizing the technical college programme. It will be a national tragedy if we in Canada, when the time comes, make our technological institutes or junior colleges serve a narrow, utilitarian function. That way lies a grey, indifferent life for thousands who more than the chosen elite need the stimulant of a few hours a week given over to an understanding of one another and the wide world about them.

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To ensure that a healthy balance exists between art and mechanics we require men of vision and determination, men who know that a good book is not measured in terms of dollars and cents, that music, art, literature—the whole heritage of western civilization—are things to cherish and keep alive, and not things to be set aside for the material success of the moment. We educate persons not robots; we educate so that man may know *first* how to live, and secondly how to make a living. Education, as the late Sir Fred Clarke pointed out, should be all of a piece, transcending and absorbing into itself the distinction between the vocational and the cultural. We err grievously when we teach only the technique of writing and omit literature, the structure of a house and no architecture, bridge building and no design, pedagogy and no understanding of the humanities, business practice and no ethics, household science and no art, forestry and no history, mining and no economics, mathematics and no philosophy.

We could learn much in Canada if we made it possible for

some of the leading authorities on British technical education to visit Canadian universities and industries, and to meet Canadian educationists in the various strata of our society. The Americans are already taking advantage of this sort of exchange and have brought out teams of British specialists. The British are doing a great deal to encourage Canadian scholars to come to Britain. During the academic year 1953-1954, three hundred and ninety Canadians were studying in United Kingdom universities. For the same period there were one hundred and fifty-nine United Kingdom students studying in Canada. It is time we began to make it possible for greater numbers of British scholars to share in our culture if for no other reason than our own welfare and self-respect.

For their new ventures in technical education Canadians have examples and precedents to look to both in Britain and the United States. It should not be difficult for us to evolve for ourselves distinctive community colleges which will care for our greatly increased school population in the next decade. But there must be breadth of vision and understanding if we are to have that complete and generous education which will enable our students to make a full contribution to the society of which they are members.

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