

## DR. MACLAURIN'S ADDRESS

(Continued from page 2.)

in mind that science and culture must be combined, i. e., the two must go hand in hand, science being studied and taught in such a way as to make for that broad and liberal outlook on the world that is the mark of a really cultured man. I hope that it is not necessary to stop to argue with anyone who thinks that science is quite incompetent to the task—for such a survival of medievalism must surely be very rare today. I take it that the root of culture (in any worthy sense of that term) is the possession of an ideal broad enough to form the basis for a sane criticism of life. What study is most conducive to this end is a question on which there is sure to be much difference of opinion, but I suspect that the subject-matter of the study is far from the most important element in the problem. We have only to think of the unpromising materials from which our forefathers often derived such real culture to be confirmed in this suspicion, and to lean towards the opinion that is the how rather than the what of study that makes for culture. If this be true, then it is vastly important, for it enables us to solve one of the most difficult questions that presents itself in education. We cannot indulge in high-flown schemes of general culture, for here, as everywhere else, the avenue to success is limitation. The practical question is how to limit? The plausible and the popular solution is that a man should be guided by his aptitudes, and by what those aptitudes should determine—his special calling in life. Here, I believe that, for once, the plausible and the popular is entirely right. It seems to me obvious that a man should try to keep closely to what will be most useful to him in life, the only qualification (and of course it is an important one) being that the adjective "useful" must not be construed in any narrow sense. It is owing to this qualification that it appears absurd to allow almost complete freedom of choice to a mere youth, whose outlook on life is not wide enough to suggest the wisest choice. I see no reason, however, why a man should spend his time in so-called "useless" studies for the sake of mental discipline and culture, if he can

gain these excellent things in studies that are more "useful" in his calling, no more than I see why a business man should not take his exercise in walking towards his office rather than in some other direction. There may, of course, be several roads to his office, and it may be that the shortest is not the best, for it may bring him there out of breath or otherwise so disabled that he is unfit for business for half the morning. Especially when he is new to the city will he profit enormously by the companionship of an accomplished man who can direct his attention to the real attractions of the way. It is of course highly important to have men that can do this well, and so at the Institute and other similar places we must have men of high rank and wide outlook who can keep the highest ideals constantly before the student. They must be men who can command the respect not only of the students but of the whole community in which they live—men such as are to be found at the best Technical Institutes in Paris and Berlin, who neither in their international reputation as men of science, nor in the esteem in which they are held locally, nor in the emoluments of their office are one whit behind those in the more ancient seats of learning.

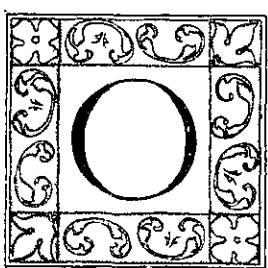
We need such broad men as professors on our staff for the reasons that I have indicated and because of the incalculable value of breadth of view and freedom from prejudice to the leader in engineering and industrial pursuits. But there are other reasons than these. It is true that the first and obvious duty of such an Institute as this is to train men for certain professions, and particularly for those professions in which science plays a leading part. It should, however, do more than this; it should take its share in the great work of getting the nation imbued with the scientific spirit. For this purpose the schools of applied science are strategic points of the highest value. If you can show people the "practical" value of science (in the narrow sense of that ill-used adjective), if you can demonstrate that it makes for healthier and fuller life, for greater prosperity and greater happiness, then you will have some chance of directing their attention to its other aspects. And this suggests another pur-

pose that the Institute should serve. It should train men to extend the bounds of knowledge, not only in the applications of science to industry, but in any direction in which they see opportunity of extending them. I believe that association with "practical" studies is one of the best things even for the so-called unpractical man who intends to deal mainly with the most abstract researches. Galileo made telescopes, Newton learned practical mechanics, Leibnitz invented machines, Kelvin laid cables. And so it should cause no surprise that when we bear in mind the size of this Institute and take account of the youthfulness of its graduates (remembering that only a small proportion of them have yet passed middle life), we find that its alumni have contributed a full share of pure scientific work of the first rank in Astronomy, in Chemistry, in Biology, and in other departments of learning. I hope that it will always be so, but to make this possible a continuance of front rank men on our staff is a necessity of our being.

But of course there are other things than studies to be considered. Above all we must preserve in our students the freshness and vigor of youth and see to it with all care that their natural powers of initiative are improved and not checked by our training. Outside the class room we can do this best by encouraging a rational system of athletics and a rational social life. In Xenophon we were told that "to ride horseback and to speak the truth" were considered the two essentials in the education of a Persian gentleman, and I can well believe that many more elaborate modern systems of education are much less liberal. Fortunately it is now becoming generally recognized that a sound body is the basis of a sound mind and of sound morals, and that men play the game of life better for what they learn in manly contests manfully conducted. It is of course deplorable, if true, that the cult of mere athleticism seems to be eating like a canker into the college life of this country just as of some older ones, but there is comparatively little danger of there being comparatively little danger of this abuse of a thing so intrinsically good in an Institute of Technology.

Here, however, we need opportunities not only for athletics properly conducted, but for a healthy social life amongst the students. Success in practical life is clearly not dependent wholly, or even mainly on knowledge—unless you use the term so widely as to include the knowledge of men and of the world. It is common experience here as in the older world that the men who make the greatest mark are often those that were quite unlearned in the schools. At Oxford or at Cambridge they pursued "a little learning and probably much more boating," but, whatever their shortcomings in the class room, they received a wholesome and a manly training from the other influences that were brought to bear in their social life. A great and learned Cardinal of the Catholic Church (that church which has been so rich in men with profound human insight) said that if he had to choose between sending a young man to a University which made no provision for social life amongst its students, and gave its degrees to any person who passed an examination in a wide range of subjects, if he had to choose between such a University and one that had no professor or examinations at all, but merely brought a number of young men together for three or four years—if he had to determine which of the two would be the more successful in training, moulding, enlarging the mind, which would send out men the better fitted for their secular duties, which would produce the better public men, men whose names would descend with honor to posterity, he would have no hesitation in giving the preference to that University which simply did nothing. Well, clearly we cannot make architects and engineers by doing nothing; work and hard work too, must always be the leading feature of a technical institute; but I see not the slightest reason why we should not have all the advantages of a rational social life amongst the students and work as hard as ever. Work is perhaps the one thing needful to check these abuses of the social side of college life, which no one who speaks with any real knowledge can fail to recognize as all too common. In social matters tradition is all powerful, and we are fortunate

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