

Christians is an interesting and a significant feature of the movement. Perhaps M. Renan's long studies in the history of the Jewish People, the clearness with which he shows the Christian law of love and charity and humility forming, for seven hundred years before the advent of Christianity, in that people, have had an influence on the intellectual perceptions of France. But there are many swift currents of human thought, hitherto divergent, that now flow toward one

confluent. It is not always easy to trace their sources or their future. If we were to seek the character common to them all, we should find it again in M. Paul Desjardins's creed, — action; in that strong spiritual divination of the time, that faith is of the same nature as action, not of the same nature as thought; and that, finally, as says M. Pierre Lasserre, “on the day when reason can clothe it in an exact formula it is very near extinction.”

Aline Gorren.

THE TECHNICAL SCHOOL AND THE UNIVERSITY.

IN the August number of *The Atlantic* Professor Shaler has discussed the relations of academic and technical instruction in a way which brings the reader to some startling conclusions. So great are the advantages which a technical school is shown to derive from association with a university, so heavy the liabilities to narrowness and smallness of aim and purpose in the case of an independent school, that those of us who are connected with technical schools not attached to universities find ourselves put upon our defense; and this, too, under very serious charges. If any large part of Professor Shaler's position can be maintained, we are offenders against the cause of sound education. It is our duty at once to seek the sheltering arms of the nearest university; or, if there be none near enough to take charge of us, then we ought to disband, and send our students to those who can do better by them. Professor Shaler does, indeed, admit that in a favorable environment a separate school may achieve a partial success; but he holds that this success is likely to be temporary, and at the best is attained through the sacrifice of important educational interests. In view of such a declaration by the dean of a

technical school enjoying the protection and patronage of a great university, it is imperative that those who have to do with detached schools shall speak in their own behalf. The controversy is not of our seeking; and we must be pardoned if we speak with frankness on all the points at issue.

In the first place, it may not unfairly be said that, if the advantages of a connection with a university are so great, it is inexplicable that the effect of this should not more clearly appear in the history of that school which Professor Shaler mentions as the first of its class to be established, and which, through the whole extent of his article, he refers to in illustration of his principle. Harvard, as he says, has exercised an admirable hospitality towards many true and useful forms of learning. Its scientific department was founded under peculiarly fortunate conditions: a handsome endowment, a noble name, a cultivated community, association with the oldest college in the country, proximity to the richest manufacturing district. All these things seemed to assure success; yet the Lawrence School graduated twice as many pupils in the first half as it has in the last half of its history. Meanwhile, scores

of technical schools have come into existence, often under circumstances most adverse, and with means painfully limited; have grown in numbers and increased in reputation throughout the general community; and have even come, in spite of prejudice, to command a high degree of respect and esteem from representatives of the old education. Does not this contrast fairly awaken incredulity as to Professor Shaler's argument, if indeed it does not create a strong presumption that he has overlooked some element, or elements, vital to the case?

The strongest instance in apparent corroboration of Professor Shaler's views is that afforded by the Sheffield School of New Haven. Here is a scientific school, giving a large amount of technical instruction, which was founded in connection with a university, and has achieved eminent success. Yet to any one who knows the history of the Sheffield School its experiences are directly in contravention of Professor Shaler's views, and indeed furnish the most important instance which could be cited against his position. Every Yale man knows that the Sheffield School grew up under the total neglect of the corporation of the college, which had nothing to do with the curriculum, and did absolutely nothing as to the selection of the teachers. In the eight and a half years while I was connected with the Sheffield School I but once saw the president of Yale in a meeting of its faculty, and that was by special appointment, with reference to the question whether the students should be required to attend morning prayers. So little had the school, in its early days, been considered by the corporation that when the Battell Chapel was erected, about 1873, no provision was made for giving the Sheffield undergraduates seats in it. Down to the accession of President Dwight the actual governing body was the faculty, under the admirable chairmanship of Professor George J. Brush. The faculty made

out the budget, cut down their own salaries whenever that was necessary, apportioned the funds for laboratory and general expenses, and selected the men who were to be appointed to positions which had become vacant or which it was deemed desirable to create. Not a single instance occurred where the choice of a professor was not solely and exclusively the work of the existing faculty. The appointment, in the legal sense, had of course to come from the corporation; but in no case did that body or the president take any initiative in the matter.

It was under conditions like these that the Sheffield Scientific School passed through the years during which its character was being moulded and its scholarly traditions formed. I understand that Dr. Dwight, since his inauguration, has entered deeply into the questions relating to the Sheffield School, and takes an active part in its councils. No more generous and comprehensive mind could be brought to the problems of any institution; and I am far from thinking that, with the traditions of the school already formed, the new régime will not be consistent with continued growth and prosperity; but I am fully convinced that Sheffield owes no small part of its brilliant success to the Cinderella-like abasement and neglect in which its work was begun and continued until the institution had passed from the gristle of youth into the solid bone of manhood.

So much for the Lawrence and Sheffield schools as bearing on the issue which Professor Shaler has raised. Other technical schools have been founded in connection with universities, and some of them have done good work. But I know no reason for attributing to the School of Mines, in Columbia College, a higher character than that borne by the Stevens Institute, a detached school upon the opposite bank of the Hudson; while, against the success attained by Sibley College, of Cornell University, may fairly be set the rolls of the alumni of the

Rensselaer Polytechnic of Troy, the Rose Polytechnic of Terre Haute, and the Massachusetts Institute of Technology.

But let us leave the comparison of technical schools under the two systems, in order to examine the reasons, in the nature of the case, which are adduced as showing that connection with a university is not merely a favorable and fortunate condition, but a condition essential to the proper development and perfecting of every technical school. Professor Shaler's first plea has relation to the administration. He argues that a competent governing body is of the first importance in the career of any institution of learning; that it is very difficult to obtain a competent body; and that, therefore, when an able and successful administration has been secured for a university, it must needs be of great service to a technical school to come under that rule, and thus be saved from the many possible and even probable disadvantages attendant upon an organization of its own board of trust. What Professor Shaler says regarding the vital importance of a strong but liberal and comprehensive government is true. Yet, when we are considering the question of the government of a technical school, it must be said that there is one element of even more importance than the business ability or intellectual power of its administrators. This is that they shall be deeply interested in the work; that they shall thoroughly believe in technical education; that they shall unaffectedly and profoundly respect the kind of man who is to teach in such a school, and the kind of pupil who is to receive the teaching. Possibly this is one of the elements which Professor Shaler has overlooked. Possibly in this respect there has been some failure among corporations or boards of trust composed of men bred in the old education, and having their standards and ideals of character and of conduct shaped by the influence of classical culture. Possibly this

explains the comparative failure of some technical schools connected with universities. Professor Shaler admits that "still, to this day, the tendency has been to regard this department of instruction as something much below the university grade." Until that tendency shall have been completely arrested, and even reversed, may it not be better that this department of instruction shall be under the control and direction of its own devoted friends? For myself, I believe that scientific and technical education always encounters a grave risk when put out to nurse with representatives of classical culture.

Moreover, conceding, as has been done, the difficulty of securing an adequate governing body for any institution of learning, it may yet be said that this difficulty is not insuperable. The Institute of Technology has had among its trustees, to mention none of the living, men like Jacob Bigelow, Erastus B. Bigelow, John D. Philbrick, James B. Francis, George B. Emerson, J. Ingersoll Bowditch, Charles L. Flint,—men fit to take part in the deliberations of senates or of universities, able in business, large of view, and faithful to every trust. If other technical schools, less fortunately situated, have suffered somewhat from the lack of liberal and comprehensive administration, it must be remembered that the same is true of all the smaller colleges of the land. If detached technical schools are to be given up on this account, so must these. Yet who does not believe that, in spite of limited opportunities and means, our smaller colleges have done a truly glorious work for mind and manhood?

The second advantage, or group of advantages, which Professor Shaler attributes to a technical school under the patronage of a university may be said to relate to the students as distinguished from the governing body. The subject is necessarily somewhat vague. I am not sure that I rightly apprehend Professor

Shaler's meaning at all points; but, so far as I can gather his views, he thinks the pupils derive a benefit in each of the following ways:—

First, the student in such a school finds himself, in classes pursuing certain subjects essential to his course, in company with students not intending to adopt technical professions. These subjects may be, for example, chemistry, geology, physics, or mathematics,— subjects which form the groundwork of technical courses, and which may also be pursued by college students as a part of their general training. Professor Shaler regards this association as a source of much advantage, applying to it the term "educative companionship." I confess that, unless it is to be presumed that the non-technical students are the better men or the better scholars, this idea appears to me very far-fetched. The notion that because a young man is going, two or three years hence, to enter a law school, a medical school, or a divinity school, he therefore contributes some special flavor or savor to his class in chemistry or physics or geology or mathematics to-day is carrying the doctrine of final cause to an extreme.

There is only one assumption upon which this plea, conceding the equal merit of the students engaged, can have any validity. That assumption is often made by advocates of the old culture; but I am reluctant to believe that Professor Shaler could possibly adopt it, although he seems to do so when he speaks of "a truly academic atmosphere" as "one in which knowledge and a capacity for inquiry are valued for their own sake, and not measured by their uses in economic employment." The fling at technical studies as less "disinterested" than studies which are pursued without a direct object is one which has often been made in recent educational controversy; but those who use it have not seemed to me to show thereby their own superior liberality of mind. A young

man who is faithfully seeking to qualify himself for an honorable and useful career in life may be disinterested in every sense in which that word can be used with approbation. Disinterestedness, in its true meaning, depends, not upon the studies pursued, not upon their immediate usefulness or uselessness, but upon the spirit in which the student enters upon and pursues his work. If there be intellectual honesty, if there be zeal in investigation, if there be delight in discovery, if there be fidelity to the truth as it is discerned, nothing more can be asked by the educator of highest aims. With such a student the useful applications of science distinctly add to the educational value of scientific study, inasmuch as they give a more direct object to his efforts and exertions, and heighten the pleasure he feels at each step of his scholarly progress.

The next advantage under this head which Professor Shaler finds in technical schools under the patronage of universities is in the opportunity afforded to the pupils to mingle some philosophical studies with those which are essential to their professional courses. In this connection it must be confessed that the faculties of many, perhaps of most, technical schools have made a mistake in not providing more so-called liberal studies. I agree fully with Professor Shaler in the opinion that such a union would conduce to ultimate professional success, as well as to the greater happiness of the man and the greater usefulness of the citizen. But the mistake referred to may be fairly attributed to the youth, and also, in some measure, to the poverty, of the technical schools. That it is not in the nature of the case is shown by the curriculum of the Institute of Technology, where literary and philosophical studies extending over three years are required of all candidates for a degree. Of the Sheffield Scientific School, in this respect, it is enough to say that its students have for twenty-five years enjoyed the teaching

of William D. Whitney and Thomas R. Lounsbury.

Another advantage which Professor Shaler discerns as attaching to professional schools under the patronage of universities is not easy of description or definition. It may, perhaps, be expressed by the single word "atmosphere." That there is something in it no one will deny; but the utmost benefit which the students of a technical school can derive from this source may easily be offset, many times over, by disadvantages arising from other sources. The history of Amherst, Dartmouth, and Williams, and of many other American colleges abundantly shows that the best atmosphere for a student is that which he himself brings to college with him in his own energy, fidelity, and scholarly zeal; that the next best atmosphere is that created by learned, laborious, and high-minded teachers; the next best, that created by a body of devoted fellow-students, all intent upon the work of preparation for life. Loafing in academic groves, or browsing around among the varied foliage and herbage of a great university, pleasant as it may be, and well enough in its way, will have little effect upon the making of the man, in comparison with influences more serious, more pervasive, more penetrating.

That the students of technology throughout our country do, as a body, apply themselves to their tasks with wonderful energy and enthusiasm is a fact so familiar that it hardly needs to be adverted to here. The accession of such students to a great university would doubtless do much good to the university; but that the technical school would be better for the association may be questioned, in

view of the multitude of distractions which beset ordinary student life, and the frivolity of many of the interests which are there deemed of prime importance. On their part, young men do not greatly care to go to schools where they are not respected equally with the best; where all the praise and all the prizes go to others; where the stained fingers and rough clothes of the laboratory mark them as belonging to a class less distinguished than students of classics or philosophy. Professor Shaler remarks upon "ancient prejudices concerning the humble position of all mechanical employments." Is it quite certain that those prejudices are even yet so far worn out of the public mind that the students and teachers of technology may not feel more at ease by themselves, in schools devoted to their own purposes, than in schools where snobbishness makes odious comparisons, and where fashions are set in respect to student life, conduct, and dress which they have neither the means nor the inclination to imitate?

With much of what Professor Shaler says regarding the desirability of preparing young men for the technical professions more by inculcating principles and inspiring a zeal for investigation and a love of learning, and less by imparting mere information and teaching useful knacks and devices, I heartily concur. Too much cannot be said upon this theme. But the question does not necessarily concern the issue raised by Professor Shaler. More than one detached school has shown the liberality of sentiment, the comprehensiveness of view, and the high moral courage necessary to place and maintain technical education upon a lofty plane.

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