collodion process, considerable space is devoted to the more modern subject of dry-plate photography. The many precautions necessary in the employment of the collodio-bromide negative process, as introduced by Messrs. Sayce and Bolton, and improved by Mr. Carey Lea and Colonel Wortley, are fully entered into; and the very rapid method introduced by the latter gentleman, in which the collodion is saturated with nitrate of silver, is given with some very recent formulæ. The subject of printing in pigments, so important in the present day, which "doubtless would become universal were the processes unfettered by patents," is fully described, with the difficulties attending the "double transfer" of the gelatin film. Following the details of photolithography, photo-zincography is that of collotype printing, which has become so prominent of late. A vocabulary of chemicals ends this valuable and suggestive work, of which, from want of space, we have had to omit the mention of many points.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.]

Science at Cambridge

THERE are some points in two articles which have lately appeared in your periodical upon which I should like to make a few remarks. First, however, allow me to congratulate the author upon having deprived the opponents of "Science" of a time-honoured monopoly. For a certain quiet insolence of conscious superiority and an inability to see more than one side of a question, his articles equal any diatribes that I have heard or read from the most intolerant supporter of "the old ecclesiasticism and false culture."

Let that pass, however, and let us proceed to examine one or two statements in detail. "Science is all but dead in England, . . . perhaps deadest of all at our Universities." Now on reading the word science, one has always to ask what a writer means, and the probability is that he means what is commonly called natural science; our writer, however, kindly gives us a definition—"that searching after new knowledge which is its own reward."

Most certainly the more eminent among our Professors and resident Fellows (and some of them are known even in Germany) cannot be said to have followed learning for any other reward; or if so they have taken their pigs to a very poor market. He will, perhaps, say that they have fellowships and professorships. Yes, the aggregate value of which will vary from probably six to nine hundred a year, coupled, in some cases, with conditions which seriously diminish their value. Is this so great a prize?

Again, we are represented as encouraging by prize fellowships and "that kind of liberal education which softens the character and prevents it being strong." I hardly know what the writer means; however, the following are the studies which we do endeavour to encourage:—

(1.) Mathematics.—Does the writer seriously mean to apply his remark to this study? If so, I can only say that to those who can appreciate sound and unsound reasoning, there is a marvellous difference between the work of (say) such a geologist as the late Prof. Sedgwick, trained in the school of mathematics, and not a few, whom it would be offensive to name, who have never had that advantage.

(2.) Language.—Perhaps in comparison with looking at mites in a microscope, or analysing some very rare but useless mineral, the attempt to enter into communion with the thought of the master-minds of our race in the past time is a contemptible pursuit; but though with a great regard for both the above pursuits myself, and with no pretension to refined scholarship, I cannot—and hope but few can—agree with this opinion.

(3.) The moral sciences.—If this is meant, I give the writer over to the tender mercies of the philosopher, who, I think, will be able to give an account of him: so also as regards legal studies.

(4.) Natural Sciences.—These are encouraged in precisely the same way as the others (in the case of most colleges). Is this then culture which produces effeminacy?

But perhaps the writer will say that only classics and mathematics are encouraged. To this I reply that the other studies are of recent growth in the University—I admit that they ought to have taken root long ago—that however is not our critic's charge—he is dealing with the present—and I have no hesitation in affirming that in all the important colleges the students of natural science have just as good a chance of honour and rewards as those of other branches of learning. The number of rewards that have been given is small, because the number of really first-class students has hitherto been small. The number of students (and their quality) increases year by year. I have no fear that as a rule they will meet with their deserts.

Or does the writer mean to say that our fault is teaching and examining, that we ought to open laboratories (for notwithstanding his definition, I think his science means only one thing) and simply exercise a general superintendence over students? After an experience of some years I can only say that though I do not worship either lectures or examinations (especially the latter), with a blind "idolatry," I believe without them the majority of young students are very apt to become slipshod and slovenly in their work.

But the trumpet's sound is so uncertain that I know not exactly what the writer does mean. I have read over and over again his *tertium quid* (p. 41), in supporting which he confesses he is with a select few—doubtless the salt of the earth—and I still am doubtful. They be very "brave words"—but "to make the University a place where anyone and everyone may be trained for any and every respectable path of life," is just the aim of every change that has been made since I have known the place. Our students—of subjects not classical—certainly increase yearly, and I have not heard of any marked deportation to the Elysian fields of either Manchester, London, Newcastle, or Germany. Neither have I found that such "master minds of the age" as are within our walls (and I think, subject to the writer's approval there are some) inaccessible to students.

In conclusion I must state in self-defence that I am not usually considered a conservative. I have done all that was in my power to help the cause of University Reform, and especially of Natural Science. But much as I delight in the latter I decline to regard it as the only culture, the only training worthy of respect. I trust to live to see yet greater changes. These however will not be obtained by vague declamations or reckless accusations—such as "long years of misrule have left suckers of jobbery, like bind-weed in an old garden, which come up refreshed with every stirring of the soil." After twelve years of active life in the University—and often failing to obtain what I wanted—I unhesitatingly assert that there is no place where there is so little jobbery, or where the motives that actuate men, even if mistaken, are so generally pure as here. There are jobs everywhere now and then, even in scientific societies or coteries.

There are indeed difficulties in the way of reform, but the writer of the articles, I venture to think, has not hit the nail on the head. May I, before ending this long letter, in a few words indicate one or two—1. The workers in the University should govern it. At present a body called the Senate, consisting chiefly of non-residents, has the final decision of everything. Throw all the power into the hands of the working bees, and we will reform ourselves fast enough. 2. The waste of money in non-resident fellowships. There are very few here who would defend the present system, but we have no power to change it ourselves. 3. The poverty of the Universities. To relieve this we must have power given to colleges to alter their statutes, and so long as the University is governed by the Senate, we in the colleges do not care to put beyond our control funds which might then even be applied to political or theological squabbles. 4. An improvement of the Professorial System—more teachers and rather less routine work, with greater unity of action between the former. Give us powers, and we will soon settle that. We are bound, like the Jews, "by a chain of ordinances," and till that is broken cannot help ourselves.

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Arctic Exploration

THE news of Mr. Hall's Arctic Exploration is important from two points of view, and I shall be obliged if you will allow me the space to point out the lessons to be derived from it, and the way in which the new facts strengthen the arguments for Polar exploration.