OUR BOOK SHELF.

Eighteen Years of University Extension. By R. D. Roberts, M.A., D.Sc. (Lond.). (Cambridge: University Press, 1891.)

THE University Extension movement takes so prominent a place among the educational influences of the age that a good account of the system has for some time been needed. This is supplied by Mr. Roberts, who, first as lecturer, then since 1881 as assistant and organizing secretary to the Cambridge Syndicate, and since 1886 as secretary to the London Society, has had the best possible opportunities of studying the new method, and of forming a judgment as to its fitness for the uses to which it is applied. He begins with an account of the origin and growth of the movement, then describes the character of the audiences, the reception of the idea by artisans, and the signs of earnestness displayed by various classes of students. Mr. Roberts also discusses the conditions of success, has a chapter on the consolidation of the work, and presents a summary of results. No essential fact has been omitted, and the general impression which will be left on the minds of most readers probably is that those connected with the movement have done much to foster and to satisfy the desire of a very large number of persons for intellectual training. There are certain rules—some of them rather difficult—with which the system must be brought into accord if it is to be capable of further development; and these are stated with much force and precision in the present useful little volume.

Evening Work for Amateur Photographers. By T. C. Hepworth, F.C.S. (London: Hazell, Watson, and Viney, Ltd., 1890.)

IN this book the author has written, in an interesting manner, a series of chapters relating to many points in photography that are generally found most useful to amateurs. The following are the subjects of some of the chapters: lantern entertainments, lantern-slides on gelatine plates, clouds in lantern pictures, frame-making, enlarging, photography by magnesium light. There are also two or three chapters on electric light, light by incandescence, and methods of making cheap batteries.

The subjects are treated in a manner that makes the book well worth reading, and its value is increased by numerous illustrations obtained from photographs and drawings by the author.

LETTERS TO THE EDITOR.

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The University of London Question.

THE Convocation of the University of London has, by a large majority, thrown out the scheme for the reconstitution of the University proposed by the Senate. Even those who had little love for it must feel some sympathy at the frustration of labours which were as patient as they were undoubtedly disinterested.

For the moment the whole question remains in abeyance. I am disposed to think that it may be useful to discuss, in the interval which must elapse before any further step is taken, some of the fundamental questions which seem to me to underlie the solution of the problem, and have never, as it seems to me, been properly considered.

On such a subject one might easily write a great deal. For the sake of brevity I shall therefore attempt to sum up what I have to say under separate heads.

The Examination System.

One factor in the present situation is undoubtedly the growing dissatisfaction of many distinguished teachers with the examina-

tion system as applied to University education. And as the University of London at present does nothing but examine, it is obvious that the question lies at the root of any judgment that may be pronounced on its present work and constitution. Those who wish to know all that can be said against the present use of examinations in University work cannot do better than study a paper by Prof. Lankester, which he has reprinted in his "Advancement of Science" (pp. 175-192). He has stated his case with all the force and lucidity of which he is a happy master. He sees "the most injurious result of the system" in "the degradation of the teacher." The "intrusive board of examiners" draws "away from him the attention and the respect of his pupils," or urges "him to put aside his own thought and experience, and to teach the conventional and commonplace."

I am free to admit that there is a certain element of truth in what Prof. Lankester says. But having had, like him, a good deal of experience both of examining and of being examined, I am disposed to think the picture somewhat over-coloured. No doubt the University of London in the past has exalted examination into a sort of idol. But as regards the superior degrees in science and medicine, at any rate, examination is now practically dispensed with, and the test of competence is the performance of some kind of original investigation.

For the inferior degrees, as far as I am aware, the examination system in more or less prescribed subjects obtains everywhere in the three kingdoms. For my part, I think the system may be defended, and upon the same lines as those on which Prof. Lankester defends "leaving examinations" at schools. For he says, and I think rightly, that such an examination "may be regarded as a means of criticizing and testing the performance not merely of the schoolboys but of the schoolmasters." Now in University education, as carried on in this country, I can only see a prolongation of school education, with methods and a moral discipline modified to suit the more advanced age of the pupils. And the inferior degree (I am not speaking, of course, of professional subjects) is, in my view, nothing more than the corresponding "leaving examination." It is a test of whether teaching has been faithfully done and learning diligently pursued.

I am quite ready to admit that impending examinations are more or less irksome both to teachers and taught; but I am not convinced that that discipline is in itself an evil. It is not undesirable that some restraint should be put on the possible vagaries of the one and the very probable desultoriness of the other. It is necessary in entering upon the study of a subject to go over its fundamental groundwork in a methodical manner. To many teachers and to many pupils this is not a little dull. It is easy and it is pleasant to dwell at some length on attractive parts of a subject and to skim superficially over others. There are probably few persons who, looking back upon their own student days, will not admit the truth of this. The fact is that to get any mastery of a subject one must learn its grammar; and the majority of young people require some degree of compulsion to make them do it. It may be irksome at the time, but the advantage is life-long. I know, speaking from my own experience, that the compulsion of schedules which is so odious to Prof. Lankester has made me devote my energies to the mastery of the rudiments at any rate of many subjects which I should certainly have carefully avoided if I had not been compelled to do otherwise. And I do not believe that, if students are carefully and soundly taught, they suffer any real injustice at the hands of competent examiners. But then I agree with Prof. Lankester that the examiners must know their business, and must not be either ill-informed or pedantic. No one, I think, can urge that the kind of men that the University of London enlists in its service as examiners are open to the charge of being either.

If these views are correct, and I believe in the main they are, then the evil consists not in the examination system as the incentive to the orderly performance of a curriculum, but in another and perfectly distinct evil on which Prof. Lankester very sagaciously puts his finger—the mischievous importance which the outside world attaches to academic achievement. "A man refers throughout his life to the fact that he obtained a 'first-class' as a sort of perpetual testimonial." Of course, in so far as this is true it is very absurd. A course of University study is a means, not an end; it is a sort of apprenticeship to a subject. The student learns its technique, its language, and something of its literature. If he has done this earnestly and well, his University will applaud him, will call him in academic

language "a good boy." But when the congratulation of his friends has subsided, the real question arises, what will he do with the tools he has learnt to use? Here, I think, University work enters upon a new phase, and one, it seems to me, too little regarded—I mean post-graduate study. To control this in any measure by means of examination seems to me in the highest degree absurd. And I must contend that by making original investigation, at any rate for its doctorate of science, the qualification for that degree, the University of London has taken a step in advance of many of the older Universities towards destroying the idea that the passing of examinations is the final end of University study.

A Teaching University.

I have always found it not a little difficult to understand what those people exactly mean who so strenuously demand a teaching University for London. What Prof. Lankester means, there can, as is usually the case, be no sort of doubt about; and this I shall discuss presently. But, as far as I can make out, all other persons seem to think that London University students labour under some special disadvantage which undergraduates at Oxford and Cambridge do not experience. Perhaps, then, it may surprise many to be told that there is no essential difference in the two cases. Examining in the two older Universities is in the hands of the University, and is just as much distinct from the teaching in their case as in that of London. I can speak with some positiveness upon this point, for having been for four years an examiner for the Natural Science Tripos at Cambridge, a University with which I have no connection, I found the functions I was called upon to perform exactly the same as those I have also fulfilled at Burlington Gardens. In fact, I can see no essential difference between the position of an undergraduate of New College, Oxford, examined for his degree by the local University and an undergraduate of University College, London, examined by the University of the capital. If Oxford and Cambridge are teaching Universities in any intelligible sense of the phrase, then I contend that the University of London is equally so.

Prof. Lankester adopts the view of Fichte, who says "that a University is not a place where instruction is given, but an institution for the training of experts in the art of making knowledge, and that this end is attained by the association of the pupil with his professor in the inquiries which the latter initiates and pursues." Most excellent, and I can imagine nothing more delightful than for some wealthy man to give, say, half a million of money to found such a University in some quiet country town in England, where professor and pupils might labour together, undisturbed by the life and movement of a big city, or the worry of the examination-room, for the advancement of knowledge. But if such "a seat of learning," in the true sense of the words, could be brought into existence, it would probably be found in practice that the students would be men who had already graduated, *i.e.* in my view acquired that knowledge of the elements of a subject which is essential to the proper performance of any work in it. A Professor of Biology, for example, would not care to have to teach a pupil at the commencement of a research how to interpret what he saw through the microscope, or how to cut a section. And if we firmly grasp the idea of the non-finality of the graduation course, we get an intelligible distribution of labour amongst the staffs of the older Universities: the college lecturers will prepare men for their degrees; the professors will guide their maturer studies afterwards.

While I cannot help thinking that those who advocate the creation of a so-called teaching University in London, have got hold of an idea which they have only imperfectly assimilated, it is still worth while to examine some of the ways in which it might be realized.

With an adequate endowment a new so-called teaching University might no doubt be established in London. It would have a staff of professors who, we may assume, would be adequately paid. The posts would in that case be no doubt filled with men of distinction and eminence. Would they be able to spend their time, full of enthusiasm but free from care, in leading students in the paths of research after Prof. Lankester's ideal? Not a bit of it. Such an institution would not be very different from a Scotch University, where one of the most distinguished scholars of his age is said to have found his time largely taken up with teaching schoolboys of larger growth the mysteries of Greek irregular verbs. In proportion as the new institution became a success the drudgery would increase and the advantage diminish. The bigger a professor's class the less

personal contact he can have with his pupils, till at last he has to rely for any influence at all on the stimulus of lecture-room oratory. As Mrs. Garrett-Anderson has, it seems to me, correctly pointed out in the *Times*, there is very little really to be said in favour of anything like a great central teaching institution for such a city as London.

The other alternative is to combine University and King's Colleges into a teaching University. But can this be regarded as in any way a statesman-like proposal? Why should two out of many institutions be picked out for University honours? And can anyone really suppose that such a settlement would have any finality about it? Why, for example, should Bedford College be left out, developing, as it apparently is, in usefulness and activity every day? Then how can the Royal College of Science at South Kensington be ignored? It is already in popular esteem ranked as a University, and bids fair to become in time in actual fact the great science University of the country. Why, too, ignore the City and Guilds Institute? It is difficult, then, to believe that a teaching University founded on University and King's Colleges can be regarded as in any way a final solution of the problem. If it is sought in this direction it must be based on a wider federation of institutions of academic rank. But in this case all the teachers will have something to say as to the conditions of common examination. Yet, according to Prof. Lankester, the essence of a true teaching University idea is the "absence of examiners—the professor himself is examiner and teacher in one." Schedules will nevertheless reproduce themselves, and the influence of colleagues will be quite as much an obstacle to the independence of the individual professor as the oppression of boards of examiners.

Furthermore, it is quite a mistake to suppose that unless the existing University is abolished, it will be possible for a younger one to escape its influence. Notwithstanding the establishment of the Victoria University, it is still found necessary, and at the request of Owens College, to hold the examinations of the University of London in Manchester. Consequently, the professors of Owens College have to adapt their teaching to a double curriculum. If the proposed University of Westminster were founded, it cannot be doubted that the same thing would happen. The professors would still have to bow their necks to the yoke of the Burlington Gardens schedules.

Expansion of Existing University.

It may be taken as quite certain that the existing University of London is too well rooted in the esteem of the community to be got rid of. Nor, with its own consent, will it readily submit to be mutilated or dismembered. And its pride and confidence in itself admits of easy justification. With all its demerits it can hardly be denied that it has accomplished a great work in raising the standard, throughout the country, of academic education. This need not be wondered at, seeing that it has always succeeded in enlisting in its service the most accomplished and distinguished men in every branch of education. If examination is to be conducted at all, I can hardly imagine conditions more favourable to its conduct than the University of London affords.

Instead of trying to diminish and curtail the usefulness of an institution which has such strong claims on public gratitude, I prefer to make the suggestion—and it is odd that it should have any novelty about it—that the future needs of University education in London should be provided for by an expansion of the existing University. This has always been the ambition of Convocation, and many, I know, share my own opinion that, if the Senate would have given greater heed to the representations which the former body has from time to time made to it, the present crisis in the history of the University would never have arisen.

I will briefly indicate the by no means drastic changes by which this might be gradually provided for.

Organization of the Faculties.

I am myself personally impressed with the conviction that the first step that should be taken in the interests of the higher education in London, and of those parts of the country which look to London for academic guidance, is the organization of the faculties. Everyone is agreed, whatever view they take on the examination question, that the teaching bodies should be brought into as intimate a relation as possible with the central University. At present there is no recognized channel of communication between them, and it has been long

felt that this is a great evil. Examination is an art, and it is a progressive art. To minimize its possible harmfulness it should keep touch with the teaching. And it must be admitted that the system which now obtains at the University of London does not make this always easy. The Senate is hard to move and slow to act. This would not be so if those who had the right to move it possessed the momentum which would be derived from a more obvious authority. In fact this tendency to inaction arises from a natural timidity. The Senate is too largely composed of persons who have no direct touch with actual education.

The momentum to which I have referred above would come with all needful force from the faculties if they were organized in a comprehensive way to include every competent authority in academic education in London. I will not stop to discuss the precise machinery by which this should be brought about. It seems to me that it would be probably sufficient if the Senate were to have power to admit to the faculties the teachers of all institutions of academic rank which supplied it with candidates. To these should be added the past and present examiners, a certain number of non-graduates conspicuous for their distinction in the subjects with which the faculty was occupied, and a proper proportion of members of Convocation.

Such a body would occupy itself with any and every subject relating to academic education. Its resolutions would embody the deliberate conviction of instructed and competent persons, and would afford the Senate a solid basis for administrative procedure. I need hardly say that the faculties—if they took, as I doubt not they would do, a just view of their functions—would look to the advance of academic interests as a whole; they would not seek the sole advantage of the central University, but would watch and work for the interests of the collegiate institutions they represented—whether in London or the provinces—as well.

Boards of Studies.

Delegations from the faculties should be intrusted with the duty of watching the examination work and advising the Senate thereupon. This they would do in two ways: (1) they would consider from time to time all alterations necessary in the schedules so as to keep the examinations as closely as possible in touch with the best teaching; (2) they would review the conduct of the examinations, though without in any way interfering with the examiners. It would be their duty to consider the papers set, and criticize them if necessary, and they would consider and report on any apparent variation in the standard as evidenced by any sudden change in the percentage of passes and rejections.

Reform of the Senate.

I think it is generally admitted that the time has come when some change in the constitution of the Senate is advisable. At present it is an assembly of notables appointed for life. Many of them never attend, and some, appointed apparently on purely political grounds—and these are not always the least competent—never perhaps have attended. On the whole, the Senate, though individually eminent, is, it must be confessed, ill-informed on educational matters. As I have already hinted, it is apt in consequence to be somewhat timid and irresolute when it ought to act with decision; it is equally apt, I am afraid, to act with precipitancy when it ultimately realizes the necessity of moving at all.

The Senate must, however, remain the supreme governing body with whom the final decision must always remain in matters of importance. This being so, it seems not too much to ask that it should be an efficiently constituted body, and that the members should attend to their duties. Tenure of office for life it would seem desirable to abolish, and prolonged absence from attendance, say for a year, should *ipso facto* vacate a seat. As for the Crown nominees, who are in great part statesmen of high rank, it would be on obvious grounds unwise to dispense with them, if they took, as many of them do, sufficient interest in the work to attend with some regularity. Where the Senate needs strengthening is in experts in academic education; and it appears to me that the faculties, if constituted as above, might be intrusted with the duty of selecting these members of the Senate from their own ranks. On the whole, it might be convenient to constitute the Senate something on the lines of the Hebdomadal Council at Oxford: a third to be appointed by the Crown, a third to be appointed by the faculties, and a third by Convocation.

Higher Teaching.

There is still, however, one direction in which the University of London might even more closely associate itself with actual teaching, and so far become in actual fact a teaching University. This was pointed out in 1872 by the late Registrar, Dr. Carpenter, in his evidence before the Royal Commission on Scientific Instruction. He said (Minutes of Evidence, 10,925), "I think it very important that the State should provide for the carrying on of those higher researches, and that higher teaching, which are not provided for in any shape at present." Again (10,926), "I think that a body like the University of London might very advantageously be empowered to take up such higher and more special teaching. At present the University of London has nothing to do with teaching. The principle of the University is to recognize existing institutions. I do not think that it would be at all the function of the University to interfere or compete in any way with the institutions which it recognizes. But I should myself be very glad to see the University empowered to carry out courses of instruction of a higher and more special kind than are given in any of the institutions affiliated to it." The scope of this higher teaching was brought out more clearly in a subsequent part of Dr. Carpenter's evidence in answer to a question of Prof. Henry Smith's (10,953). He asked, "The Senate might at some future time endeavour, might they not, to have such lectures given in connection with the University of London as are now given in the Collège de France?—Yes, more of that character."

Such lectures would serve for the post-graduate study, provision for which seems to me the great defect in University education as it exists in London. And the professorships themselves would be positions which could be filled by eminent scientific men whom it is difficult as things are to retain in the capital. To take biological subjects as an example, the continual draining away of men like Michael Foster, Burdon Sanderson, and Lankester seems to me a real loss to the intellectual life of London.

It is just possible that it may be objected that the proposal to have a superior professoriate attached to the University is in some degree a slight on the Colleges and their teachers. And it may be urged that, if there were any demand for post-graduate teaching, the Colleges are quite competent to provide it. It may be so; but in practice I do not believe it feasible. The working day is inelastic, and from what I myself know of the labour involved in what may be called systematic graduation courses, I do not believe that the same man can superadd the higher work as well. Besides, to be of any value, it must not be formal and perfunctory; the essence of the higher teaching is that it should reflect the research to which the occupant of each chair should be able to devote the whole of his time.

I do not think that such professorships will be founded as long as the University is under the control of the State. For this and other reasons I should gladly see the University cease to be a quasi-Government institution, and launch out on its own resources. It seems almost incredible, but it is a fact, that at the present time not the slightest alteration can be made in a schedule without the approval of the Home Office, or the slightest alteration in the amount of prizes without that of the Treasury. There is no inducement now to the public to provide endowments, because, as the University nearly pays its way, any public benefaction would only tend to create a surplus, which would have to be paid over to the Exchequer. But I can hardly doubt that if the University were cut adrift from the State it would receive endowments which would enable it from time to time to found useful and important chairs. These would form not an unwelcome addition to the too few prizes accessible to those who devote themselves to learning for its own sake.

I had it in my mind to say a few words about the very complicated but independent problem which medical University education in London presents. But this paper has already run to an intolerable length, and the subject is perhaps of limited interest to the readers of NATURE. But I may say that I believe that the organization of a strong medical faculty would bring about the solution of all existing difficulties.

W. T. THISELTON DYER.

Royal Gardens, Kew, May 18.

A NOTE in the last issue of NATURE (p. 39) seems to assume that the present University of London is nothing but an Imperial Examining Board that has got wrongly named, and stands in the