

tained." The second principle enunciated by Lord Salisbury is the endowment of research—a principle which has been long advocated in these columns, but which now for the first time appears destined to obtain legislative sanction. In the case of its distinguished sojourner, Prof. Max Müller, the University of Oxford has already admitted its duties in this matter; and now research in the physical sciences, under the ægis of Lord Salisbury, and with all the authority that Parliament can lend, will put in its claim to be "made a part of the regular and recognised machinery of the University." To many persons this will be thought the greatest novelty contained in the speech, and it is significant that none of the three peers who followed the mover made any allusion to it in their brief remarks. But it is not necessary now to expatiate upon the importance of the proposal, or the valuable results that will flow from it. It is the first fruits of the Royal Commission on the Advancement of Science, and will lead, we trust, to the adoption of more of the recommendations made by that laborious body. It is of more importance on this occasion to call attention to a distinction which Lord Salisbury has apparently drawn, and to which the Colleges would do well to take heed. If we understand his words aright, he would impose upon the University the duty of supplying, of course from the College endowments, the capital sum that will be required "from time to time for buildings and apparatus, necessary for the purposes of research;" while he would leave to the individual colleges "to provide for the maintenance and benefit of persons of known ability and learning, who may be engaged in study or research in the realms of art and science." This distinction seems to us an important one, partly because it assigns to each the functions which they can best perform, with the least revolution in their characters; and still more because it insists upon two separate modes of endowing research, which are of equal value, and must be both demanded alike. We cannot forbear quoting at some length the comprehensive views of Lord Salisbury on this subject:—"We are of opinion that the mere duty of communicating knowledge to others does not fulfil all the functions of a University, and that the best Universities in former times have been those in which the instructors, in addition to imparting learning, were engaged in adding new stores to the already acquired accumulation of knowledge. There are new sciences which have gained, and which are pressing for, admission to the Universities, and I think no one can doubt that it is for the interest alike of the students and of the nation at large that such sciences should have full encouragement. . . . What I am particularly anxious for is that all branches of culture should have equal encouragement, and should be regarded, not as rivals, but as allies in the great and difficult task of cultivating and developing the human mind." Apart from these two leading features of the Government scheme of University Reform—the endowment of the University by the Colleges, and the endowment of Research—it remains only to notice the ease with which Lord Salisbury, in one short sentence, brushes aside "the religious difficulty" as unworthy of attention. "The teachers at Oxford are not clergymen now, and if we want to get the best men, we must get them from other sources than that which formerly supplied them."

With regard to the machinery by which these great

reforms are to be effected, it is better that criticism should wait until fuller explanation is given. On a first glance, it would seem that the colleges are to be allowed a year and a half to devise their own schemes of reform, subject only to the approval of the Commissioners. On this point we confess to a feeling of distrust of such "permissive legislation;" and are disposed to adhere to the old-fashioned liberal theory, which had its advocate in the Archbishop of Canterbury. "He believed that the Colleges are not an exception to the general rule which has been found to exist everywhere, that hardly any corporation was capable of entirely reforming itself without external pressure." It should never be forgotten that some colleges have already tried their hands at reform, and that none have yet made adequate provision for the wants of the University or of scientific research. The College which, in all educational matters, is usually recognised as the most efficient, has obtained final sanction to a scheme which does not allude to either of these subjects. Another college imagined but a few years ago that it was reorganising itself in accordance with the most modern ideal, when its teaching staff obtained permission from their episcopal visitor that they might one and all incontinently marry, and bought off his natural opposition by agreeing to retain all the existing clerical restrictions. It is whispered, at the present moment, that a third college has just matured a scheme by which each of the tutors shall receive a fixed salary from endowment of 800*l.* per annum. With these instances in view, it will manifestly be the duty of all sincere reformers to urge that the powers given to the Commissioners should be strong enough to override the possibility of such abuses. If only this be done, and if the name of Cambridge be added to the bill, the Government project will become in all respects praiseworthy.

#### LEGISLATION REGARDING VIVISECTION

IN our observations last week upon the Report of the Vivisection Commission, we remarked that some might be inclined to think that in the legislative measures recommended Science has made too great concessions to popular feeling, and a more careful perusal of this bulky volume tends to convince us of the correctness of this opinion. One of the most astonishing things referred to in the whole report is the small number of persons for whose restraint the new law is to be passed. Judging from some of the statements made by opponents of vivisection, one would think the vivisectioners in this country must be counted by hundreds; but the Commissioners inform us that, on the contrary, not more than fifteen to twenty at the utmost are systematically engaged in the performance of experiments on living animals. They add, however, that experiments are, there is little doubt, occasionally performed by private persons, of whose number they can form no accurate computation. As there might be many such, and their experiments taken collectively might give good grounds for the belief that vivisection is extensively carried on in this country, we have tried to gain some information on this point from the statements of various witnesses. The Society for the Protection of Animals liable to Vivisection has published a pamphlet containing such extracts from the Report of

the Commission as tend to justify the position taken up by the Society, leaving the advocates of vivisection, as it tells us in a prefatory note, to give publicity to such parts of the evidence as favour their views. We have selected the witnesses quoted by this Society as giving evidence upon the extension and abuses of vivisection, in order that we might not run the risk of being misled by partial statements and of under-estimating the extent to which the practice prevails in this country.

The first of these, Dr. Acland, observes that the number of persons in this and other countries who are becoming biologists without being medical men is very much increasing; but beyond this statement, in which he appears to have in view professional physiologists rather than occasional experimenters, there is nothing in his evidence to lead to the belief that vivisection is practised to any extent by the latter class. Mr. G. H. Lewes tells us that so far from ignorant people exercising their fancy in cutting up live animals, even medical students are extremely reluctant to perform experiments at all on account of the trouble involved in doing so. Sir William Ferguson states that the impression on his mind is that experiments are done very frequently in a most reckless manner; but when we look for the grounds of this belief we cannot find anything except the accounts given by students of experiments they had seen during lectures. We should have thought a man of Sir William's experience would not have trusted to such hearsay evidence without farther investigation, knowing, as he must do, how students delight to exaggerate and to tell frightful stories of the dissecting-room for the pleasure of seeing their mother's or sister's eyes grow wide with horror at the tale. The evidence of other witnesses shows that such exaggeration must have been practised here, and that no such experiments as Sir William describes have been performed in any medical school in this country. But this witness is of opinion that it is only in laboratories and schools that vivisection is carried on, as in this country surgeons do not employ it for the purpose of acquiring dexterity, and he thinks there is not much amateur physiology. Such evidence from an active opponent of vivisection goes far to show that the number of occasional experimenters cannot be great, and that the practice of vivisection is almost entirely confined to the fifteen or twenty persons alluded to by the Commissioners. Small as this number is, we would have considered it right to legislate if anything like wanton cruelty had been shown to be practised by them; but the Secretary of the Royal Society for the Prevention of Cruelty to Animals admits that he does not know a single case of the sort, and that in general English physiologists have used anæsthetics where they think they can do so with safety to the experiment. Such being the case, it seems to us that the objections raised to legislative interference by several witnesses carry great weight. Those made by Mr. John Simon are especially worthy of consideration, not only on account of his well-known ability and clear-sightedness, but because his official position has given him a better opportunity of becoming acquainted with the working of laws and of forming a correct judgment regarding the probable operation of any proposed bill than other witnesses who are constantly engaged either in the laboratory or with the cares of practice.

The opinion he expresses that incompetent experimenters, careless of the sufferings they inflict, do not exist as an appreciable class in this country, is borne out by the evidence we have already referred to, and it does seem hard that physiologists of high reputation and unblemished character should be treated as a dangerous class, and should be licensed and regulated "like publicans and prostitutes under the licensing system;" Mr. Simon considers that it would afford facilities for the persecution of physiologists, and would enable those who are so inclined to hold them up individually to popular odium. That the inclination is not wanting is shown by the advertisements of the Society for the Abolition of Vivisection constantly appearing in the daily papers. In these an attempt is made to destroy whatever medical practice the authors of the "Handbook for the Physiological Laboratory" may have, and by thus reducing their means of livelihood to starve them as far as possible. This is done by representing them as so hardened by their pursuits and so callous to suffering as to be unfit for attendance at a sick-bed; although we learn from the evidence of Prof. Rolleston and Mr. Simon that two of them at least are exceedingly kindhearted men, and the other two have devoted themselves to researches having an unusually direct bearing on the prevention of disease or the alleviation of suffering.

Much and careful consideration is therefore wanted lest in the endeavour to prevent abuses which may hereafter creep into the practice of vivisection of animals we do not afford facilities for the mental vivisection so graphically described in the evidence of Mr. G. H. Lewes, of honourable, kind-hearted and sensitive men, whose pursuits are not merely advantageous to science but productive, as the Report clearly shows, of great benefit, both to the human race and the lower animals. Legislation may still be wanted in the interests of physiologists themselves, not less than of the animals on which they experiment, but what we have said is, we think, sufficient to show that this must be undertaken in no hasty spirit.

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*MISS BUCKLEY'S HISTORY OF NATURAL SCIENCE*

*A Short History of Natural Science, &c.* By Arabella B. Buckley. (London: John Murray, 1876.)

THE object of this book is, as stated in the Preface, "to place before young and unscientific people those main discoveries of science which ought to be known by every educated person, and at the same time to impart a living interest to the whole, by associating with each step in advance some history of the men who made it."

We are also told that—

"When treating of such varied subjects, many of them presenting great difficulties both as regards historical and scientific accuracy, I cannot expect to have succeeded equally in all, and must trust to the hope of a future edition to correct such grave errors as will doubtless be pointed out, in spite of the care with which I have endeavoured to verify the statements made.

"As the size of the book makes it impossible to give the numerous references which would occur on every page, I have named at the end of each chapter a few of the works consulted in its preparation, choosing always in