

Professor T. H. EASTERFIELD examined. (No. 13.)

1. *The Chairman.*] What is your subject?—Professor of Chemistry in Victoria College. Before I go to the main subject which I wish to deal with, I wish to correct a misstatement in the University Reform Association's pamphlet, page 84, and the ninth line from the bottom. Although this statement does not affect the argument, there is a sentence inserted there which is in opposition to fact. It is stated "For honours no certificate is required, but in some cases a thesis, which may be a theoretical one and so may not be evidence of skill in practical work, is necessary." I must say that statement is wrong. It should be this: "For honours in all experimental sciences a certificate of having attended an approved laboratory course is required, and in some cases a thesis embodying the results obtained by the candidate in some investigation or research. In physics no such thesis is required." I pointed out that this does not affect the main argument, that in awarding the marks to a scholarship or degree candidate in science the examiner in England is unable to take into account whether he has experimental skill or not.

2. Is that in the honours examination?—No, for the examinations generally.

3. Is there no difference in these examinations?—Yes, I will come to that later. I will now just illustrate what I mean: Supposing I had a man who is a born chemical manipulator, just as you get the born mechanic who can work three times as fast as and do superior work to that of the ordinary man. Such men are rare, but you find them. That man would be put down by me as being a first-class practical worker in the pass degree class, and he gets his certificate that he has satisfied me. When he sits for the degree examination the examiner, not having conducted a practical examination, will not know that the man was perhaps a real genius or is at any rate better than the rest of the people. It means a real hardship sometimes to the candidate. The best instance I can give is that of an English student who worked with me some years ago. He could never learn to spell, and was, of course, badly handicapped in all written examinations, but he was without exception the best experimentalist I have met and had a deep knowledge of the theory of chemistry. Owing to my taking an interest in him he was taken into the private laboratory of one of the best-known men in Germany, and the professor wrote to me to tell me that I had discovered a genius. Going back to England he was appointed Director of Research Laboratories to the British Government and Chemical Expert to the Explosives Committee and Ordnance Research Board. Well, such a man as that would have been discounted in such science examinations as are conducted by our University, in which written work only counts. I think that it an indictment against the present system of carrying on the examinations in science. In some of the higher examinations things are little better, because the candidate must produce a thesis—that is, he must send in an account of a set of practical experiments that he has himself conducted, and the professor must certify that the man did the work himself. At the same time everybody who has worked in the laboratory will know that even though a high-class manipulator who takes up a particular investigation, and does his work very well, he may (metaphorically) run up against a stone wall. For example, he may attempt to prepare a new compound that will be of peculiar interest, and nature is against him because the substance is incapable of existence. He may have worked for a whole year and at the end of the time he comes to the conclusion that this substance cannot be produced—just as the inventor may attempt to invent a machine for a particular purpose and at the finish not be able to turn out a satisfactory article. The probability is that the examiner would from this thesis recognize that the man knows something of practical chemistry, but the positive results obtained by a weaker candidate who has successfully attacked a less difficult problem would certainly receive much greater approbation from most examiners. For honours in physics things are worse, because the thesis was abolished in 1892, and the examiner is in ignorance about the candidate's experimental skill, exactly as in the case of the pass degree: with this exception, that a paper is set by the examiner upon a schedule of practical work, which practically tests what the candidate remembers outside of the laboratory of the work he was doing inside. Well, I ask any engineer who may be present, would you trust a mechanic to do a simple job in iron moulding or turning or fitting merely because he could describe on paper how the thing ought to be done? I know what would be done. He would be sent into the workshop, and then it would appear very plainly what his knowledge amounted to. I say, further, that in physics such a system as this gives the candidate who will learn up descriptions of how a certain thing should be done rather than that he should do it himself, an unjust advantage. It is a direct incentive to students to neglect the practical side of the science—and yet it is only through the practical work that the majority of students can really understand the theoretical portion. That is everything I have to draw your attention to in connection with the statement on page 84. It is quite possible that the error has crept in through a statement being rewritten that I had supplied to one of the editors, and which was misinterpreted. It is a very obvious error, and it is only right that it should be corrected. The next point I would like to refer to is in connection with the evening students. I am told that there is an impression in the minds of the Committee that we are opposed to evening work at all. I can hardly suppose that that is so, for the statement which is made in connection with evening students, it seems to me, is sympathetic. On page 14 we find, "In our experience evening students are usually an earnest, hard-working body of men who value highly the education they make sacrifices to obtain." It seems to me that indicates sympathy with the evening student, and if you knew the amount of self-denial that my colleagues have displayed in connection with evening students I am perfectly certain that no misinterpretation could be made as to their attitude. I have been informed by a member of the Committee that such an idea had arisen. I may say that it has been no uncommon thing for my colleagues to teach these students up to 11 o'clock at night, and when I have left the college at half past 11 I have left my colleagues still there. How far it is going to affect the health of the students I do not know, but I have known them to be at the laboratory until 3 o'clock in the morning. There is no doubt that it does account for a certain