

found chemistry not too interesting a subject. What stimulated my interest was Professor Thorpe's coming to me and saying one day, "I am in a hurry; I have had a question asked me that I cannot answer. It will need some practical work. Will you attempt to find this out?" It was in connection with the chemistry of photography. I pointed out that I was an elementary student, but said that I would do my best. I obtained a result which was satisfactory, and which I checked by other experiments, obtaining the same result in each case, and he said "I am satisfied." That gave me confidence. The same experience I find repeated amongst my own students. Two medical students whom I asked to help me in investigations have since been appointed to professorships of chemistry. In New Zealand I have no difficulty in getting secondary-school masters so far interested that they have successfully attempted to do original work, and have appreciated work given to them in that way. Let me read to you a letter which I received from one such student who came down to Wellington admittedly with the sole object of obtaining a degree, and he only took chemistry because he thought it would help him in getting an appointment. Subsequently he became my demonstrator, and is now headmaster of a school and is doing well. This is what he wrote when he left Wellington: "I want to thank you for the excellent testimonial you wrote for me, which I am sure helped me materially in securing the appointment; but I want to thank you and express my deepest gratitude for more than that, for the kindly interest you have taken in me, for all you have taught me, and for the influence you and your friendship and your laboratory have had on my life and career. I came to Wellington in many ways green, my scientific knowledge scant. You pulled me along, gave me confidence, imbued me with a spirit for science, and by appointing me your demonstrator gave me a new standing and a new faith in myself and my work." It is a very big change from the man who had merely come down here in order to get his degree as quickly as possible. You will find the same thing throughout. Dr. McDowell spoke of research as being something for the exceptional man. My experience is that a very large body of men can do research which is useful, and certainly research that will have such an influence on their mental attitude that their influence as citizens will be enormously enhanced. On the other hand, I will instance the slackness that may come from university training in other directions. The headmaster of one of the largest secondary schools in New Zealand said to me, "My complaint is this: that my under-masters have learned a large number of subjects, but they have no special interest in any one. When I was appointed I called my masters to me and said to each of them, 'What subject do you prefer to teach?' And they all said they did not care—they would as soon teach one subject as another. And then I said, 'Would you not like to go further, so as to obtain a masterly knowledge of some one of these subjects?' And they almost universally said they did not care about learning any more, but they would like to get more degrees." Well, that is a very severe indictment. Another indictment of similar type came from the headmaster of a secondary school again, and one of the best-known schools in New Zealand. He said, "My complaint is that many men with a B.Sc. degree take little interest in science as science: to them science ends with the curriculum which has been prescribed by the University." We must insist upon the research spirit, and yet what does the University do for research? None of its funds are given to post-graduate scholarships. We give scholarships to enable medical men after graduation to go abroad, and to allow engineering graduates after examination to go abroad; but to encourage post-graduate research in New Zealand not a penny is given by the University out of the scholarship funds. The Government, I am glad to say, gives a scholarship to each of the colleges, and very good work has been done by those who have accepted such scholarships; but the attitude of the University towards research is not one of appreciation. The University, however, offers gold medals and certificates to graduates who have passed the honours examination. They must apply for the honour, pay £5, and present a thesis of sufficient importance.

5. What university is that?—The University of New Zealand. But I think I am right in saying that self-respecting investigators are not likely to send in a thesis and ask for the gold medal. It is the thesis itself which is proof to the scientific world that the man is a good investigator; it is the publication of the work by a society of standing. If one of our men went to Germany, and said he wanted to do research-work in a laboratory, the professor would say, "Where did you work, with whom did you work, and in what journal was the work published?" Perhaps the man might say, "I have obtained first-class honours," and the professor would say, "Where is your work?" and if there was no published work the professor would say, "I must test you for a few weeks in laboratory work." Such cases have come under my notice. In another case one of my students had published papers in the "Journal of the Chemical Society," and the professor said, "This is evidence that you know how to work; I will intrust you with an investigation forthwith." That is the correct attitude. I am glad to say that for the Doctor of Science degree a thesis is required. But those who were present at the last meeting of the Senate may remember an attempt being made there not to reduce the standard, but to reduce the hardships of the preliminary conditions required in order that a man may become a candidate. We were met with a statement that the University of New Zealand had made a great mistake by giving the Doctor of Science degree as the result of original work, and that a very stiff examination ought to have been given instead. I might say that "Hear, hear," on that occasion was heard from several members of the Senate. I have not referred to the technical importance to the community of research, but it is perfectly obvious that the diffusion of the spirit of research will be of benefit to all our industries. It will mean that the interest in the experimental sciences will be quickened and the spirit of the agricultural and manufacturing community will be more progressive. Without waiting to see the results of experiments carried on in other countries, we shall attempt to help ourselves. If, on the other hand, our science professors fail to investigate and to stimulate others to do research-work they must be regarded as derelicts in their profession, however useful they may be in some other capacity. I trust I have made my attitude sufficiently clear.