

which has emanated from my division of the Experimental Farm work. Then, again, in close connection with this part of the work, there is the preparation of articles for agricultural newspapers. Continually there are questions referred to us by them, and the answers are published in the agricultural press of Canada.

*Analyses of Samples.*—A further branch of the work which relates directly to the education of the individual, lies in the examination of samples sent in for analysis and report. As far as possible we endeavour to satisfy these demands. Of course it is impossible, and it would not be right for us to undertake work which would benefit the individual only. There are, nevertheless, many instances when the individual may first be benefited, and, secondly, the results of value to a larger portion of the community. We endeavour, as far as time permits, to meet these demands.

*By Mr. Carpenter :*

Q. Is your work in that respect increasing?—A. It is. I think I might say that as, in the matter of correspondence, we have become a bureau of information, in this other matter we have now become a bureau of reference. In the report which is now in the press, I give in tabular form a schedule of the samples which have been sent in by farmers for analysis and report, from the various provinces of Canada. Last year we received in the laboratory a total of 294, and these consisted of soils, of naturally-occurring fertilizers, such as swamp mucks, peats, marls, gypsum and river muds; and fertilizers, such as slaughter-house refuse, sea weed and many other allied materials of fertilizing value, which could not be classified directly under the head of commercial fertilizers. The samples received also include a large number of well waters from farmers and dairymen, all of which were examined and reported upon. Insecticides, fungicides and other substances, which in some way or other relate to agriculture have also been examined and reported upon. These facts will, I think, make it clear to you that the farmers throughout the country have begun to recognize the value of chemical assistance, and that they are now availing themselves of the help that is offered to them through my division of the Experimental Farm system.

In this connection I might say that I am firmly of the belief that these postal inquiries which, as you are aware, can come to us free of all mailing charges, and these demands for analysis, will become more and more numerous as time goes on. That may be gathered from the experience of the past few years. I further believe that the publication of our literature and the addresses which have been delivered by the Experimental Farm Staff and others upon agricultural platforms, have at last brought the farmers and our agricultural people generally, to a better realization of the necessity of applying more systematic or scientific methods in farming. I think they are coming to see that success in farming depends just as much upon cheap production as upon high prices. Once they have realized that the second step is to learn that cheap production depends largely upon conducting the work on sound principles—and I think that the principles which underlie plant nutrition and animal growth, the production of dairy products, milk and its products, are essentially chemical principles—I look forward to an ever increasing usefulness on the part of the chemical division to the farmers of Canada, and I make this deduction principally from the fact that our people are more and more, every year, perceiving that skilful and profitable farming can only result, in these days, from the application of methods based on scientific principles. I would now very briefly bring before you some of the more important investigations that have been carried on during the past year, and from what I have already said you will understand that the material which appears in my report from year to year, represents practically about one-third of my work, the other two-thirds being taken up in the work which I have this morning designated more particularly as directly educational. Of course all of our work is educational, but that which I wish to particularize now may well be designated as original research or the solution of agricultural problems.

*Soils.*—We have continued our analytical investigation of the virgin soils of Canada. During the past year this work has been restricted to certain soils from the province of British Columbia. Without entering into the details which appear in my