INTRODUCTORY ADDRESS

By SIR CHARLES HERCUS

ON behalf of the University of Otago I wish to offer a warm welcome to this seventh meeting of the New Zealand Weed Control Conference. We as a university are always very glad to have meetings of scientific conferences within our walls, and to offer what facilities we can. In the present instance we think it particularly appropriate that these discussions—discussions of such importance to the country—should be held within a university building. For all this important work arose in comparatively recent times from academic studies in darkened rooms on what caused the bending of oat seedlings. It is an excellent example of the rule that any research, however apparently academic to start with, may turn out in the long run to be of great material benefit.

It started off, as I have said, with the painstaking study of the curvature of oat seedlings in a dark room. When the tip of an oat seedling is removed growth stops. If the tip is replaced but a little to one side, that side grows the faster. This and other experiments showed that some substance was formed within the tip of a growing plant which diffused downwards and controlled the rate of growth. If the tip were placed to one side, more of this substance called *auxin* diffused downwards on that side, and that side grew faster than the other, and so the shoot bent.

I had the pleasure of listening to Dr. Kögl in 1933 describe his work which culminated in the isolation of the substance which caused this growth. It was one of the most fascinating lectures it has been my privilege to listen to. Kögl not only isolated the substance in small amount but determined its molecular structure. The same substance, which is produced in the growing tip of a plant, was found to be identical with the substance controlling the formation of roots.

Then about 1936, in common with other laboratories, Messrs. I.C.I. Ltd. at Jealotts Hill, became interested in these plant hormones and experimented with synthetic variants of the natural hormones. They found that while small doses were beneficial increasing the dose some 10 to 100 times was detrimental. Moreover, the action was selective and certain plants could be killed while other plants were unharmed. Further work in conjunction with the Agricultural Research Council led to the discovery of the present hormone weedkillers, which are proving so effective.

Only 15 years ago the number of chemicals used for the protection of crops from insects, fungi, and weeds could have been listed on a single page. Today the number runs into hundreds. That is why it is necessary to have such conferences as the present one, and on behalf of the university I express the hope that your conference may be successful in every way.