MYCOLOGY AND PLANT PATHOLOGY

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In introducing the session on seed-borne fungi, Mr Moore said: I do not intend to stand between you and the speakers for more than a few minutes but, as was indicated in the preliminary announcement about these meetings, the papers selected were designed to show, as far as is possible in the time allotted, the relation of mycology to other subjects. This morning we are concerned with its relation to plant pathology, and I have been asked to make a few comments on this.

Now the relationship should not be difficult to define if everyone were agreed about what mycology and plant pathology are, or about the difference between a mycologist and a plant pathologist. But, unfortunately, in practice there seems to be a good deal of confusion about this, both nationally and internationally. In this country, where the study of plant diseases has, until comparatively recently, been dominated by investigations of plant pathogenic *fungi*, no clear distinction has been made between mycology and plant pathology, or between mycologists and plant pathologists. For very many years the official adviser in plant diseases to the Ministry of Agriculture and Fisheries has been called the Ministry's Mycologist, in contrast with the Entomologist, who was concerned with plant pests. Specialists in plant pathology at the Research Stations have generally been called Mycologists, and for twenty-five years there has been a special corps of Advisory Mycologists on the staffs of the Universities and Agricultural Colleges, who have been concerned with giving advice in the whole field of plant diseases. Change, if not clarification, is now taking place. At Headquarters there are posts for both Plant Pathologist and Mycologist, though the distinction is still a nominal one: under the new National Agricultural Advisory Service the corps of Advisory Mycologists has become an official corps of Advisory Plant Pathologists: and at the Research Stations and elsewhere there is a growing tendency to try to get away from using the terms 'Mycology' and 'Mycologist' with omnibus meanings. Abroad, the terms we have used are replaced by 'Plant Pathology' or 'Phytopathology' and 'Plant Pathologist', which cover more or less the same field, except that in certain countries plant diseases caused by eelworms fall within the scope of Plant Pathology, whereas in this country they are regarded as the concern of the entomologist and not of the 'mycologist'.

To me the relation between mycology and plant pathology presents no difficulty when a rational view is taken of the two subjects. Mycology is the science of *fungi* or, if you prefer, the branch of botany dealing with *fungi*, and those who study it are Mycologists. As such it comprises many different things, including the taxonomy of fungi, their collection and

preservation, their biology and nutrition, their uses in medicine and industry, and the part they play in diseases of plants, animals, insects and man.

Plant Pathology is a science treating of plant diseases, their nature, cause, progress and results: it is concerned with the pathological condition of plants, whatever the origin of that condition. The subject should therefore be regarded as comprising the study of plant diseases caused by fungi, algae, bacteria, viruses and eelworms; the study of plant pests; and of the vast field of nutritional or physiological disorders. These parts form a natural whole, and it is no longer possible to separate them, or to attempt to separate them, into watertight compartments. Entomology is bound up with the study of virus diseases; eelworms and fungi are often closely linked; and the incidence of both pest and disease is dependent on nutrition and environment. On the other hand, it does not follow that those who study plant pathology are necessarily to be labelled plant pathologists, in the way that I prefer to use the term. There is undoubtedly a place in advisory work for the general plant pathologist who is familiar with the nature and control of all the common troubles that lead to sickness in plants, but for the most part the subject provides common ground for the mycologist, entomologist, virus worker, helminthologist, bacteriologist, nutrition or soil chemist, and plant physiologist, each specializing along his own lines, but collaborating closely with cognate branches.

Thus we have two subjects, mycology and plant pathology, each with its many branches, and strictly speaking they overlap only where, and in so far as, each is concerned with plant pathogenic *fungi*. Hitherto the overlap has been an unduly large one in this country, for fungi as agents of disease have taken the lion's share of attention both in mycology and plant pathology. This predominance is likely to become less obvious in future. Already the increased attention given to virus diseases and nutritional disorders has shifted the emphasis somewhat in plant pathology, and the same will happen in mycology as soon as research in systematic, industrial, and medical mycology is given the attention it needs and deserves.

It was natural, in selecting a topic from the field of plant pathology for discussion to-day, to choose one from the overlap. Even so, the field was wide and the choice difficult. 'Seed-borne fungi' was given the preference, in part because it is of general interest and concerns most crop plants, and in part because of the opportunity to call on the experience of our neighbours in a matter of increasing importance, which has so far been given scant attention in this country. We are extremely glad to have with us to-day Dr Doyer, who so readily consented to give us the benefit of her long experience as Mycologist to the Official Seed Testing Station at Wageningen. As Chairman of the Seed-borne Diseases Committee of the International Seed Testing Association before the war, she repeatedly urged the need for testing seed for the presence of diseases, and for modifying the International Rules governing seed testing to achieve that object. Many of us, too, have found her beautifully illustrated *Manual for the Determination of Seed-borne Diseases*, issued in 1938 under the auspices of the International Seed Testing Association, most helpful and illuminating.

Prof. Muskett is Head of the Plant Diseases Division of the Ministry of Agriculture in Northern Ireland and occupies the chair of Plant Pathology at Queen's University, Belfast. He has devoted much of his time during the past twenty years to devising laboratory methods for seed examination for disease and to the control of seed-borne disease by chemical means. His contributions to the pathology of flax and cereal crops have indeed been notable ones. The third speaker, Dr Mary Noble, is on the Staff of the Scottish Seed Testing, Plant Registration and Plant Pathology Station near Edinburgh, where, as part of her duties, she has put her early training in seed-borne disease under Dr Doyer to good advantage. We had hoped to welcome Dr Paul Neergaard, Phytopathologist to the seed firm of J. E. Ohlsens Enke at Copenhagen, whose recent excellent Monograph on *Danish Species of Alternaria and Stemphylium* may be known to some of you, but he is at present in America and is not expected back until next May. And now I have much pleasure in calling on Dr Doyer to tell us of her experience in the determination of seed-borne disease.