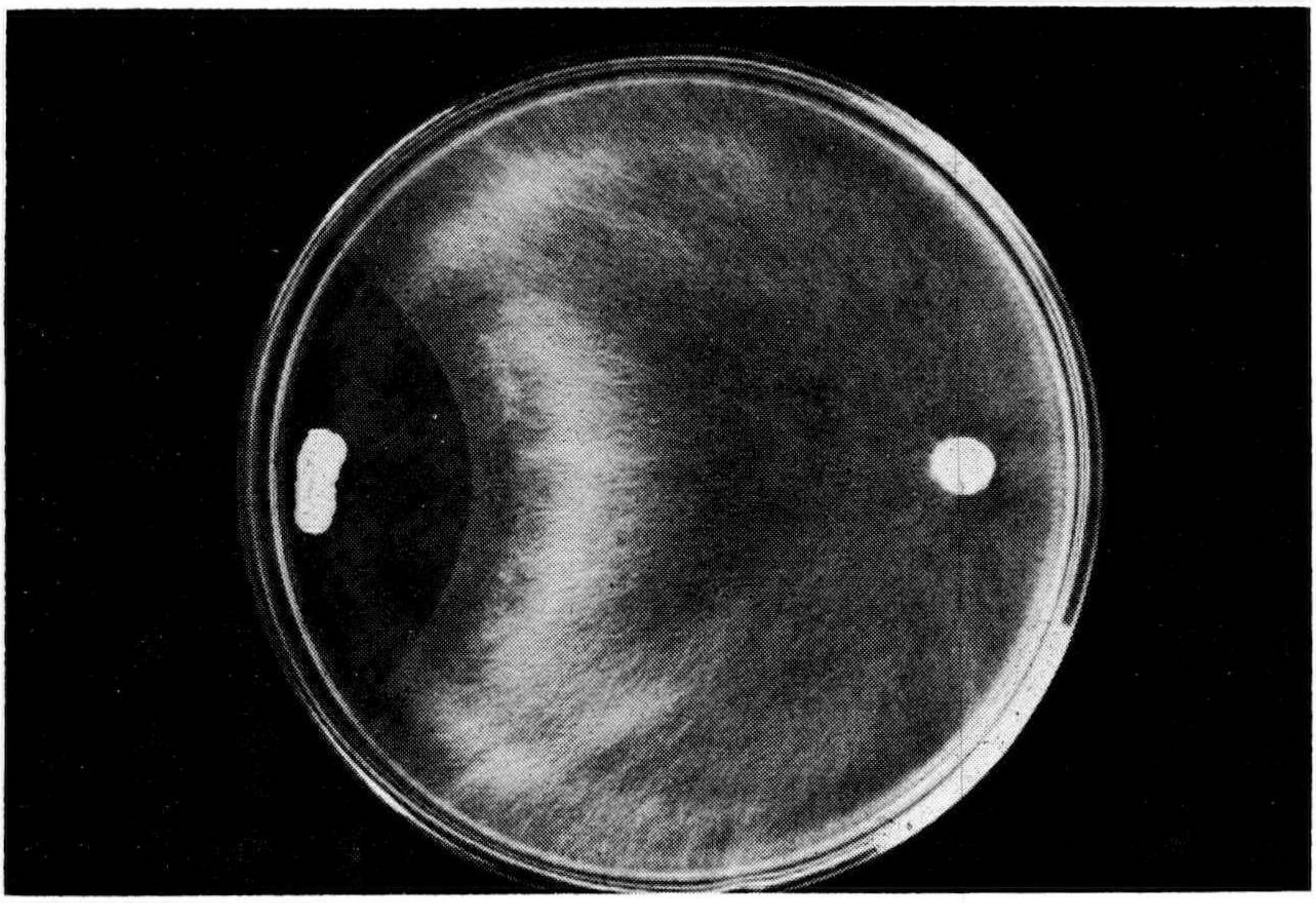

Figure 2. The fungistatic activity of bacteria isolated from sphagnum moss.

bacteria is identical to the substance(s) extracted from the sphagnum moss. The bacteria may in fact be the source of the fungistatic material(s) found in sphagnum moss. The substances from both sources control the growth of *Rhizoctonia* and *Fusarium* as well as *Pythium*.

MODERATOR SHUGERT: Thank you, Charley, very well done. Our next speaker on this part of the program with the very intriguing title "From Near Laboratory Propagation Conditions on to the Average Commercial Situation," Frank Turner, Berryhill Nurseries, Springfield, Ohio.

FROM THE NEAR LABORATORY PROPAGATION CONDITIONS TO THE AVERAGE COMMERCIAL SITUATION

FRANK TURNER
Berryhill Nursery
Springfield, Ohio

This is an examination of at least two sets of working arrangements and aims for results that propagators have. Some of us are connected with commercial establishments, where factors of quantity and costs are paramount. Others are members of institutional type staffs. These latter often represent the more altruistic value of the search of knowledge for its own sake and the value of teaching others.

This comparison is made, not for presenting one of these types of endeavor as either inferior or superior to the other, but

in the hope that at least partial survey will bring about understanding and mutual advantage on both sides of the picture.

Many of the plant subjects we work with are not stable. Where the instability is understood and laid down in references it would appear that research oriented organizations with more knowledgable chiefs and staff members would be better equipped to cope with the maintaining of strains and types of plants.

This peculiarity regarding the plants sometimes goes to the extreme of causing the commercial house to grow from seed whereas the other man grows from cuttings.

At any rate it needs to be pointed out that commercial nurserys handle very small lots of plants even those of great virtue at a serious disadvantage. They have also to admit that they often do not have the perceptive personnel to apply to the many points of selectivity that need to be taken into consideration in the selection of cuttings, their location on the plant, stage of juvenility, or other desired characteristics.

A redeeming point in favor of the businesses that grow plants for sale is that many maintain stool blocks for some kinds and stock plants for others. The benefits of this practice have been previously thoroughly covered in our proceedings.

The organizations for plant propagation under discussion here often vary widely in the items of structures and equipment devoted to the work. This is probably not as great a variant as it would first appear to be for the simple reason that the successful business house should be able to afford the best there is in these items. There remains only in this connection to point out that as structures and equipment grow more costly the business operator is under greater obligation to make them pay out on the investment.

There is just about this same to say regarding the modern array of precision measuring and recording devices that are presently at hand. All propagators are searching for the more or less automatic controls that tend to reduce the factor of human error in the handling of seeds, cuttings and grafts.

We had it said here yesterday that the nursery business is tending to develop the ability to dig (harvest) at almost anytime. This aspect of things certainly has its counter part in the field of propagation.

It brings on what may be called the calculated risk in the matter of timing. A commercial house today often works intentionally on disadvantageous timing caused by economic factors such as labor supply and perhaps the fact that none of us are as fully departmentalized as we would like to be.

Closely allied to that opinion there is, and should be, a variance in attitude toward risk. A business firm seeks a minimum of risk. It chooses the sure thing over trial and often persists in its former ways and methods although they are not the most advanced ones.

In contrast the propagator working toward goals of research and experiment can choose his best methods from prob-

ably better knowledge of inherent principles. He can fail, find the cause, and do it over.

Improvements in ways of propagating and the ones offered in the compiled proceedings of this Society alone are very great are not an easy thing for all of us to return home and put in force.

They are possibly less easy for the commercial firm to realize quickly on than for others. This is for the reason that improvements can be faulty from the aspects of slowness, tediousness, and not leading to rapid substantial quantity production. They often have a requirement for the working out of additional "know how" as it applies to an individual establishment. To make this clear I am referring to what the automobile industry calls "bugs" in its new models.

We can very easily find differences in attitude regarding nurse systems to carry the newly propagated plant onward. On a trial basis, it is justifiable to carry the new plant through, such as the first over wintering, regardless of all factors needed.

These measures are not so easily justifiable by the propagator who is restricted by end prices and by the division of their facilities among sizeable numbers of runs in large amounts.

Appearances indicate that a broad sector of propagators connected with educational activities do have distinct advantages in communications among people doing similar work. Their policies regarding publication are more disciplined and they seem to be in position to derive greater benefit from correspondence and publication. Their opposite numbers in commerce are simply under a different kind of pressure. Their activities are such that though very willing their time for this type of effort is limited.

Their remains a final question to answer. Are all propagators building a suitable and adequate historic record? It should be one that assures that old practices, some very ancient are not senselessly dropped. We need also measures to cause newer findings to be hastened into more general use.

MODERATOR SHUGERT: Thank you very much, Frank. Our next speaker in the program is Dr. Harold Davidson from Michigan State University, East Lansing who will speak on clonal and sexual differences in the propagation of Taxus.

CLONAL AND SEXUAL DIFFERENCES IN THE PROPAGATION OF TAXUS[1]

HAROLD DAVIDSON AND ARTHUR OLNEY
Michigan State University
East Lansing, Michigan

Investigators have found that certain inherent characteristics of plants influence their rootability. Among the character-

[1]Paper number 3524 Michigan Agr Exp Sta, East Lansing, Mich.