PROPAGATION FACILITIES ON THE CONTINENT

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We have learned a great deal this morning and this afternoon, starting with the anatomy of cuttings by Bill Snyder. Jim Wells told us about the wounding of cuttings and Hal Tukey showed us that we can actually melt in the rain after all. Fred Galle told us some of the things we should avoid, and George Oki has our systems and mechanisms all back in order.

I think that just before supper it might be nice to relax a little bit and take a quick tour through some of Europe, emphasizing, as much as possible, plant propagation. We will start in France.

We took the opportunity to see many of the famous sights in Paris, including those dealing with anatomy, but the real reason for coming to Paris was to visit the small town of Gif-sur-Yvette which is the site of the centre National de la Recherche Scientifique. One of our members, Dr. J. P. Nitsch, is assistant director of a phytotron located at the center. The phytotron is designed to study the effects of the environment upon plant growth and development. Air temperature, humidity, and daylength are precisely controlled and almost any climate can be duplicated in the laboratories.

We left Paris by train and went to Munich, Germany. We visited the excellent botanical gardens in Munich and then spent several days in the Bavarian Alps.

In Belgium we saw one of the earliest techniques used to control moisture loss from cuttings -- bell jar propagation. In contrast we saw a new electronic leaf that was also controlled by temperature. The "leaf" would regulate the mist as long as the temperature did not exceed a pre-set maximum. If the air temperature exceeded the maximum, the controller would turn the mist on until the temperature dropped below the limit and then the "leaf" took over the controls again.

A highlight on the trip was a 3 day visit to the research institutes at Wageningen, Netherlands. The research center is equivalent to the U.S.D.A. laboratories at Beltsville, Maryland. It is very impressive that a country the size of the state of Maryland can establish and operate such an extensive research organization. We saw a very interesting stock-scion interaction. When a melon scion is grafted on a *Cucurbita fitsafolia* understock the combination grows vigorously as long as a few leaves are left on the stock. If the few leaves are removed, the entire combination dies. Apparently the stock leaves produce a substance essential for growth, and the melon leaves do not synthesize this substance.

A great deal of work utilizing radiation is also being conducted. Seeds are exposed to high levels of radiation and then are germinated. A small percentage of the population will be mutants, that is genetically different from the parents. The mutant seedlings are grown on to determine if they have any immediate practical use or if they will serve as new genetic material in the breeding program.

At the nursery experiment station in Boskoop, Netherlands, we learned from Mr. Van Doesburg that a combination of captan and a root promoting substance gave better results than when a root promoting substance was used alone. With *Tsuga canadensis* 'Pendula' for example, 23% of the controls rooted; 24% of the cuttings treated with 50 mg/l indolebutyric acid (IBA) rooted, but when 50 mg/l IBA was combined with 5% captan, 74% of the cuttings rooted. Similarly, with *Chamaecyparis obtùsa* 'Filicoides' 30% of the controls rooted, 46% of the cuttings treated with 50 mg/l IBA rooted, and 78% of the cuttings rooted when treated with 50 mg/l IBA plus 5% Captan. At present it is not known whether the stimulation is due to the fungicide action of the captan or because of an interaction between Captan and IBA.

The Captan-IBA mixtures were prepared as follows. Ten percent Captan was used as the starting material. If the final strength of IBA was to be 1% then the starting material would be 2% IBA in talc. Then equal portions by weight of the 10% Captan and the 2% IBA were mixed. The final concentrations would then be 5% Captan and 1% IBA.

If 0.5% IBA were desired, then the starting material would be 1% IBA and 10% Captan. In other words whatever the concentration IBA you wish to use, you start with twice that concenration dilute it with the 10% Captan. Similar results were obtained when naphthaleneacetic acid was used.

I hope that you have had a chance to relax little, gained some useful information or ideas, and are ready for supper. Thank you very much.

PRESIDENT SNYDER: I want to thank the Moderator and the speakers who were on the program today and I think it was a very excellent program. We thank Dr. Mahlstede for the planning and the speakers on the panels for getting their points across and staying very close to time. I am sure we all appreciate it.

We will adjourn until 8:00 o'clock tonight and then until 9:30 tomorrow morning. Thank you.

(The session recessed at 5:30 o'clock.)

RECESSED

(*Editor's Note*: On Thursday evening a special session on teaching was held. Dr. L. C. Chadwick was moderator. The following people participated on a panel which discussed teaching techniques with particular emphasis upon the laboratory:

Dr. Thomas Cannon
North Carolina State College
Dr. John Mahlstede
Iowa State University
Dr. Robert Meahl
Pennsylvania State University
Dr. Robert O. Miller
Ohio State University

The session was not recorded).