Chairman Ward: That was quite an interesting discussion on the validity of the Hydrogen Peroxide test. It has been fairly well accepted in connection with the testing of species of the genus Abies and Pinus in the Northwest. It was again pointed out that the seed laboratories would greatly aid the nurserymen and other forest tree seed users by correlating laboratory test results with field expectation.

Most of us are acquainted with Mr. Roland Rotty of the Washington, D.C., office of the U.S. Forest Service. As editor of Tree Planters Notes, he has visited the Northwest **in** connection with tree planting. We had originally scheduled Mr. Rotty to present a paper and slides of his recent trip to Spain. Mr. Rotty was not able to be with us at this time, but he has prevailed upon Mr. J. W. Farrell to represent him.

FORESTRY AND LAND USE IN SPAIN

by

J. W. Farrell

At the request of the Spanish Ministry of Agriculture Roland Rotty and I were detailed through the International Cooperation Administration to Spain as consultants on reforestation mechanization.

First let me give you a few highlights regarding Spain, its people and resources, particularly pertaining to the forest resource.

The area of Spain is about equal to the combined area of Utah and Nevada. Part of the interior area is similar in topography and climate to these two States, although much of the nation is similar to the southwest States especially New Mexico, Arizona and parts of California.

Many of the people live near the Mediterranean and along the northern coast of the Cantibrica and the northeastern coast of the Atlantic. There is surprisingly little development on the southwestern coast on the Atlantic.

The population of Spain is about 30 million people, having increased from 21 million since 1939 or the close of the civil war in Spain.

Much of Spain has been cultivated and farmed for centuries; also, livestock have been grazed for perhaps an equal time. In fact, the range has been heavily grazed and exploited and the heavy grazing use continues.

The program of the present regime in Spain is to impound water in the main streams and to use the water for power generation and for irrigation on some of the bettor agricultural lands and for flood control purposes. This program immediately pointed up the need for afforestation and reforestation jobs of considerable magnitude. Much of the land is plagued with accelerated erosion and the consequent siltation of reservoirs presented an immediate problem. Many acres of so-called protection or watershed forests have been planted and plans are well laid to plant an additional acreage. Reforestation for wood production is currently under way and has been accelerated in recent years.

Much of the low land along the rivers has been subject to floods over tha centuries. Where the rivers are controlled or are being controlled by dams, there is much reclamation work under way which consists of dikes, revetments, etc. to stabilize the fine silts followed by cultivation, the planting of wheat and several varieties of cottonwood (Chopo).

One of the first questions that will, no doubt, come to your mind is the tree species now being currently planted in Spain. There are Pinus pinea, Pinus pinaster, Pinus Halipensis, P. laricio, Scotch pine (Sylvestris), Monterey pine (P. insigneous), Ecualyptus, mostly globolus, and several species of populus.

Methods used in reforestation:

1. Direct seeding, both broadcast and spot.

2. Bare root planting of seedlings and transplant.

3. Growing of seedlings in ceramic pots in nursery and transplanting with ball of soil.

4. Cuttings especially poplars.

5. Growing of small seedlings in tubes.

Thorough site preparation in either method.

Nurseries are well dispersed and vary in production from a few hundred thousand to two or three mm. The largest one I saw can produce about 10 mm seedlings and transplants.

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Following his talk, Mr. Farrell presented a series of very interesting slides. The pictures were taken during March, April and May, 1957, and were quite interesting in comparing their planting methods with ours. Spain has a terrific

erosion problem caused by heavy, continuous over-grazing. As a remedy the Spanish foresters have used direct spot and transplanting systems. The placing of three large rocks around each seedling to provide shelter and preserve moisture was also discussed.

The balance of the meeting was a round table discussion by all interested persons on new developments in nursery equipment, practices and techniques. This discussion was led by Jim Augenstein of Savenac Nursery, Haugan, Montana. Jim started the discussion with several slides of some of the equipment that he has been working on at Savenac.

Rex Eide, of the Forest Industry Nursery, reported on their trailer-mounted spray rig and brought out discussion of several different rodent repellent mixtures.

A lively discussion was centered on the use of plastic bags for cold storage and shipping of nursery stock.

The Webster Forest Nursery described a three-point suspension transplanter which incorporated three Holland transplant units in a single frame capable of transplanting six rows of seedlings in a 50-inch bed.

Karl Lanquist reported a roving band of cotton picking Indians and a tar-papered wickiup going through his Nursery at McCloud, California.

The ensuing discussion evolved around the fact that while in the process of mechanizing nursery operations and procedures a number of very excellent techniques were sidetracked. It might well be to the advantage of the thinking nurserymen to delve into the archives of discarded nursery equipment, practices and techniques. By so doing we may be able to resurrect some of these sound fundamentals that were sidetracked during the heat of the race.

It was decided to have the next meeting in 1960 at Coeur d'Alene, Idaho, with Jim Augenstein and Frank Pitkins, co-chairmen.

The meeting was adjourned to meet again at 6:30 P.M. for a no-host dinner.

At 7:00 P.M., slides on eucalyptus trees in Spain, Turkey and California were very ably presented and explained by Woodbridge Metcalf, retired Extension Service Chief from California. This presentation contributed to a very enjoyable evening.