

FORESTRY—CLIMATOLOGY

# The Doctors Dispute About Trees

## Climate Will be Affected Only Locally, But Trees Are Expected to Make West a Better Place to Live

**T**HE MUCH-debated shelter belt of trees proposed for the Great Plains region would be at best of minor usefulness, and when most needed would be of no use at all, in the opinion of Dr. Ellsworth Huntington, research associate in geography at Yale University. In *The Journal of Forestry* (November), Dr. Huntington sets forth his reasons for skepticism at some length.

He expects no general effect on the climate at all. Meteorologists are practically unanimous, he declares, in believing that any effect which a tree belt might have upon the rainfall would be negligible.

But further than this, Dr. Huntington holds that the local and limited reductions in evaporation rates immediately in the lee of a tree belt could not operate to advantage under some of the most critical drought conditions, simply because there would not be any water in the soil to be conserved by this check on evaporation.

He says: "Even if a tree belt could be established, it would be of little value in two kinds of bad seasons, namely, those experiencing droughts in the cooler months when the wheat is germinating and making its early growth, and the deadly years when rain is deficient during the spring before the arrival of great heat.

"Corn profits from the shelter of trees more than does wheat, because its main growing period is in hot weather, but corn is far less important than wheat in the Shelter Belt.

"The net result, then, is that even if a Shelter Belt were established its effect would be important chiefly in years when the precipitation of the cooler season insures a good early growth of the crops before hot weather sets in."

It would be more to the point, Dr. Huntington thinks, frankly to abandon the idea of grain farming in this region and restore it to its original state as a grassland cattle range, fencing off certain areas for wild hay harvesting, to be stored against recurring lean years, and also providing for better water supply by deep wells and storage reservoirs. Even better, he holds, would be a

thorough-going program of Government-supported research aiming at long-range weather forecasts that might tell in what seasons it would be safe to plow and plant, and when a timely retreat should be made before an oncoming drought.

He suggested: "Probably no scientific discovery would benefit American farmers more than would the ability to predict the general character of the weather six months or so in advance. Many helpful lines of investigation are known, but the great hindrance is lack of funds and workers.

"The Weather Bureau ought to have half a million dollars per year—only ten million dollars of capital investment—with which to employ skilled men for research only. Today even the best research men there devote a large part of their time to routine administrative work with which they never ought to be bothered.

"Instead of a Shelter Belt why not discover when to plant marginal lands and when to refrain from planting?"

Forestry as a profession may suffer from the intensive publicity which the tree-belt project for the Plains area has received, Prof. H. H. Chapman of the

Yale School of Forestry fears (*Journal of Forestry*, November). Prof. Chapman is also president of the Society of American Foresters.

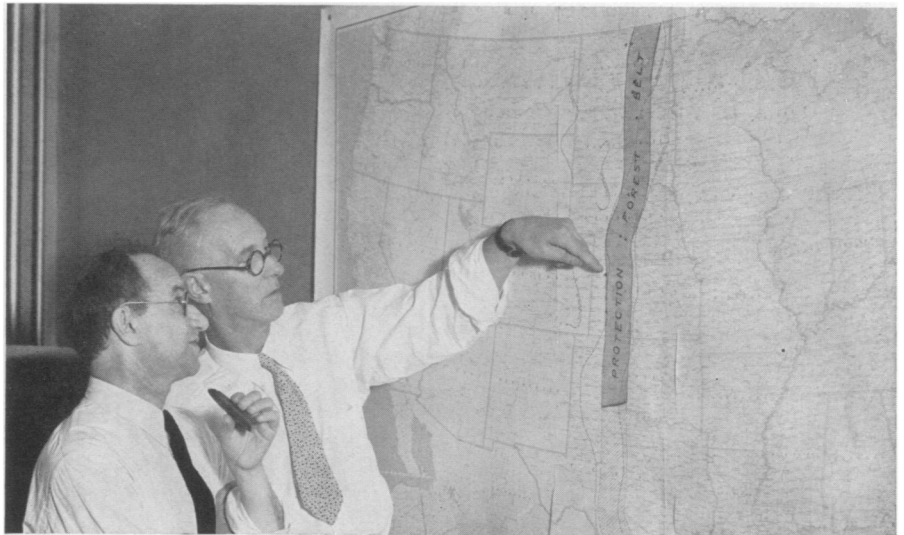
Foresters have been handicapped for a long time, he says, by skepticism on the part of other professions regarding the soundness of their scientific standing. Now, just as their colleagues are becoming favorably convinced "comes this sudden front page publicity, reviving all the old misguided notions of forests and climate."

Prof. Chapman points out the possibilities and limitations of tree-growing in the Great Plains region:

"As outlined in its rigid simplicity, of 100 continuous belts of trees 1,000 miles long, the plan is fantastically impossible. . . On heavy clay soils, or on alkaline areas, no success can be expected even with the utmost care. Where the soil permits of tree growth the rate of height growth is slow and the trees are relatively shortlived. . .

"Yet trees can be grown on these plains, provided the entire operation is guided from first to last by the highest technical skill in selecting site, species, seed sources, planting methods, cultivation and continuous care, rejecting all chances on which the odds are unfavorable, and disregarding the relatively very high costs of the operation.

"Not only that, but the localities



### PLANS AND POSSIBILITIES

*Dr. Rafael Zon, director of the Lake States Experiment Station of the U. S. Forest Service, discusses shelter belt problems with a colleague.*



#### ALREADY ON GUARD

*A farm shelter belt of Scotch pine in Minnehaha County, S. D., only a few scores of miles to the eastward of the proposed Great Plains shelter belt location, seems to be doing very well.*

which produce these trees are made better places for human beings to live in. The immediate lea of the windbreak is given distinctly beneficial protection from the velocities and evaporation of strong hot winds, or stinging northers. Frequent hedges and tree belts (every few hundred feet) are used with good effects in forest nurseries and elsewhere to control blowing sands."

In North Dakota, where the proposed Great Plains shelter belt would begin, the doctors are disagreeing, both as to its practicability and its value. A symposium published in *American Forests* (November) sets forth some of their pros and cons.

Prof. C. B. Waldron of North Dakota Agricultural College, Fargo, states:

"Until the last few years of severe drought it was our belief that on any land where farmers could grow crops, groves of trees could be established if the right species and methods were used. Now that we have witnessed a rapid decline in the condition of both natural and artificial timber tracts, we realize that nothing can overcome very adverse natural conditions. . . .

"Trees can be grown to an age of twenty to thirty years without great difficulty in most situations, but after that, their greater requirement for moisture means a slowing up of growth or an actual decline in unfavorable conditions or in very dry years. Under any but the most favorable conditions, due to natural soil moisture, the groves of North Dakota have not improved after forty

years and at the end of fifty years, most of them are gone."

George F. Will, a prominent nurseryman of Bismarck, N. D., who has had wide experience in tree planting in the Plains region, believes that the undertaking is doomed to failure if carried through along the lines announced.

He writes: "I feel quite sure that as originally announced and outlined the shelter belt can be nothing but a failure as a whole. There are a very large number of acres throughout the territory which, owing to elevation, drainage or soil conditions and content, cannot under any circumstances support a growth of trees, and many portions of the shelter belt are bound to cross such areas.

"It seems to me, therefore, that if a project of this kind is going to be put through at all it will necessitate a rearrangement by which selected areas scattered over the whole project area and picked for their adaptability to tree growing should be planted and the continuity of the belts forgotten."

On the other hand, Pres. F. E. Cobb of the North Dakota School of Forestry, gives the project wholehearted endorsement, though with cautions that replacement plantings should be planned at shorter intervals than is customary in Eastern forestry practice, and with solid doubts regarding any wholesale effects on climate.

"As to the technical soundness of this large federal project, I would unquestionably state that it is entirely sound and with the proper species of trees and

previous preparation followed by subsequent cultivation and supervision should give a high degree of success. . . .

"Even during these last five years of drought in North Dakota our plantings have been uniformly successful, where the land had been properly prepared the summer previous to spring planting and had received the proper subsequent cultivation."

While foresters, climatologists, land economists and other experts of all varieties continue to debate the possibility of growing trees on the Great Plains, and their value if they can be grown, the U. S. Forest Service is actively engaged in the preliminary steps of actually finding out. Comptroller General McCarl's ruling, that stopped the immediate expenditure of \$15,000,000 for full-scale planting, still left \$1,000,000 available, and this is to be expended in surveys, experimental plantings, and the development of the large nursery stocks of young trees that will be needed if Congressional action this winter restores the plan to its full scale, with funds to go ahead.

Administrative offices for the shelter belt project have been opened at Lincoln, Nebr. In St. Paul, Minn., research men of the Lake State Forest Experiment Station are attacking the botanical and ecological problems.

Of native American trees, the species on the testing list are for the most part chosen from among the last outliers of the prairie groves and timber belts that look westward toward the almost treeless expanse of the Plains. They include such inhabitants of dry hilltops as burr oak, hackberry, red cedar and jack pine. Soft or silver maple and boxelder, two native tree species that used to be planted in millions by the early generations of farmers on the prairie hills, will also be given a try, as well as American elm, green ash, white birch, poplar and ponderosa pine.

Foreign trees also are scheduled for testing. The same dry interior steppes and plains, from eastern Russia clear across Asia, that yielded such now-familiar drought-resistant crops as alfalfa, Siberian millet and the hard wheats, have also been combed for drought-resisting trees. Five species now in hand are considered promising, on the basis of experience already had in this country. They are Russian willow, Russian olive, Russian mulberry, Chinese elm and the Golden Rain Tree.