

Pine Pure or Pine in Mixture

A Plea to Those Who Would Grow White Pine Forests to Copy Nature and to Beware of Breaking Her Laws

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THOUSANDS of acres of pure white pine have been planted in the East and thousands more are being planted. Because white pine is the best eastern conifer, almost everyone says:

"Let us have lots of it; let us plant it anywhere we can find room—in pure stands. The more, the better!"

But white pine never grew "naturally" in pure stands, except on sandy soil, and it seems quite certain that it was never intended to be grown that way.

Human attempts to improve upon Nature by favoring

growth is practically at a standstill. And yet the planting of pure pine goes on, and more and more time and money have to be charged against the white-pine weevil, the Pales weevil, the white-pine blister rust, heart rots, and other "ailments." Even were it economically possible to eradicate all of these enemies, the fact would still remain that pure, even-aged stands of white pine, on the heavy soils, do not come up to our expectations. Owing to the uniform height of the trees, crown friction often starts to develop when the stand is not over fifty years



WHAT OFTEN HAPPENS IN A PURE, EVEN-AGED WHITE-PINE STAND

The camera which snapped this picture was pointed upwards into the crowns of the trees. Note how friction has worn the crowns down to mere wisps. The crooked stems are caused by the white-pine weevil. These trees are less than seventy years old, yet they have been in a stagnant condition for at least a decade.

one plant or animal at the expense of another have often resulted in destroying the fine, natural balance of things, in increasing the destructiveness of diseases and pests of one kind or another, and in producing conditions which were not anticipated. While the planters are busily engaged setting out the open fields and cut-over lands with white pine in regular rows six feet apart, millions of insects are sharpening their "teeth" and making ready to attack the unsuspecting seedlings; billions of fungal spores are being made ready for dispersion at the proper time; and, worse yet, many stands of pure pine still in early middle life are not even "earning their salt," because their

old, and gradually so reduces the size of the crowns that growth is practically nil. Furthermore, the lack of a mixture of hardwoods and heavy-foliaged softwoods, such as hemlock, certainly reacts unfavorably upon the productiveness of the soil, as well as upon the quality of the pine.

In contrast to the general unhealthiness and poor quality of white pine grown in pure stands is its health and high quality when grown in proper mixtures. In the old-growth forest on rich soil white pine grew singly, or in small groups in mixture with numerous other species, both hardwoods and softwoods. Its early struggle with

its neighbors served to prune it of its dead branches, thus improving its quality, while the whole rank and file of mixed growth insured its long, healthy life and final dominance in the stand. When once it had overtopped its associates, its crown expanded, its growth was accelerated, layer upon layer of clear wood was laid on, and it retained its health and vigor for a century or two.

But it is not necessary to allow white pine to grow for two or three centuries in a mixed stand in order to secure many of the advantages of the mixture. Recent studies made at the Harvard Forest have shown that natural forces may be so directed and speeded up by silvicultural treatments as to justify the growth of pine in mixed stands on rotations of well under one hundred years, and such mixtures give promise at least of alleviating many of the "ailments" of the pure pine stand, as well as affording the distinct advantage of not having "all the eggs in one basket." Furthermore, pine-hardwood mixtures lend themselves to a lengthening of the rotation, without danger of stagnation, thus making possible the production of large, high quality timber.



A REMNANT OF OLD-GROWTH MIXED FOREST

White pine, on the heavy soils, grows "naturally" as single trees or in small groups within mixed woods composed of a great variety of species, both hardwoods and softwoods.

Admittedly, there are good arguments in favor of planting pure white pine in the case of private industries which are almost wholly dependent upon it. On the other hand, it is highly desirable in the case of public forests, where due regard should be had for stability,



WHAT HAPPENS IN A MIXED STAND

Note the clear, straight stem of a pine which has grown up with hardwoods. This pine has outgrown all of its neighbors, and, with its crown completely exposed to the elements, it will remain healthy and vigorous for a century or more, putting on layer upon layer of clear wood of highest quality.

permanency, and a safe public investment, to favor the establishment of stands which are well adapted to the environment—stands which will remain healthy and productive over long periods. Moreover, if the public does not take up the production of high quality, large dimension white pine, such as can be grown only in mixtures, it is doubtful if we shall ever have any.

By far the safest and surest motto for one to follow is—"Copy Nature and hasten her work," and any program of forest establishment which is not in accordance with Nature's laws is bound, in the long run, to fail.

Recreation Conference Proceedings Published

THE COMPLETE proceedings of the National Conference on Outdoor Recreation, held in Washington, at the call of the President, May 22-24, have been published as Senate Document No. 151, 68th Congress. In it will be found the details of the first instance in which the moral, spiritual, and economic values of outdoor recreation have received formal recognition by the head of a great nation.