FOREST CONDITIONS OF THE PAST.

An uninterrupted forest, extending from Michigan through Wisconsin into Minnesota, originally covered almost the entire surface of these 27 counties. Along the southern and south-western border, this forest faded into oak and jack pine “openings” and in places gave way to regular prairies. It was generally a mixed forest of white pine and hardwoods on all loam and clay lands; it approached to the regular pinery on the tracts of sandy loam and the red clays of Lake Superior, and on all sandy and loamy sand districts, it was invariably pinery proper, generally a mixture of white and red (Norway) pines. This great forest changed in character along a line extending approximately through Range 7 W. from Lake Superior to Town 31 N., from here to the southwest corner of Marathon county and thence east to Green Bay.* To the east and north of this line the hemlock joined the hardwoods and pine on all gravelly clay and loam lands; the birch (not white birch) disputed precedence among hardwoods, so that we may designate the forest as birch forest with admixtures; the red oaks were thinly scattered and the white oaks practically wanting. To the south and west of this line, the hemlock generally did not grow at all, the birch became scattering, white oaks were abundant, and the oaks gave character to the hardwood mixture, making the bodies of pure hardwoods distinctly oak forests. These bodies of hardwood were much more common on this side of the line.

Along the edge of the forest to the south and west the dense cover of a variety of tall hardwoods and conifers gave way rather suddenly to monotonous brushwoods, composed of scattered, bushy oaks, either alone or mixed with jack pine. (Portage, Dunn, St. Croix, Polk counties.)

In almost all parts of the mixed forest of the loam lands, the hardwoods formed the body of the forest and the conifers the

* The lines of distribution as here laid down refer only to the occurrence of trees as timber of economic importance, and not to their botanical distribution.
admixture. The hardwoods were represented by trees of all sizes, from the seedling or sprout to the mature timber tree. They formed nearly all of the undergrowth and this hardwood forest showed every indication of thrift and permanence. The white pine (red or Norway pine did not grow on these loam lands) and hemlock were represented almost entirely by mature, old timber, standing isolated among the hardwoods, or at most growing in groups or small bodies. Saplings, bushy young trees, and seedlings, were comparatively scarce. Active reproduction was evidently not going on, and there is every reason to believe that both pine and hemlock were losers in a long-fought struggle for possession of the ground, in which a change in the general conditions of moisture probably had something to do with their defeat. As regards white pine this was most conspicuous in the southern counties and on the heaviest soils (Marathon, Langlade, and Dunn counties), where in many places the hardwoods had succeeded in crowding out the pine entirely, but wherever sand or gravel discouraged the hardwoods (Wood, Barron, Price and Sawyer counties), the pine held more nearly its own, and formed a fair proportion of the sapling timber.

The thinly scattered balsam and the less frequent spruce appear to be in the same position as the pine and hemlock, but they were much less important trees and naturally their sparseness was less conspicuous.

In the regular pinery of the sandy soils the pines predominated, the hemlock was entirely wanting and the hardwoods were scantily represented by small white birch, aspen, and maple, which were mixed with the young pine. In the dense stands of mature timber these deciduous trees were killed out but reappeared where the superannuated pines were dying off and the cover of their shading crowns was broken. (Oneida, Vilas, Marinette, and Bayfield counties.)

On the better loamy sands the pine forest was a mixture of white and red (Norway) pine, with occasional patches (perhaps temporary) of jack pine (Vilas, Oneida counties) but on the poorer sands the red (Norway) and jack pine often stood alone
as a pure growth. Either one or both together formed forests of considerable extent, usually with hardly any undergrowth and mixture save some scattering scrub oak. (Barrens of Bayfield county and in Douglas, Marinette, and Portage counties.)

The greater part of the swamps in North Wisconsin were well stocked with dense thickets of tamarack, cedar (arborvitae), and some scattering spruce. The cedar (arborvitae) prevailed in those of the eastern part, especially the swamps of the sandy loam lands along and near Green Bay, the tamarack had undisputed possession of those of the southern and southwestern part and also covered part of the swamps of the openings. The swamps of the central, northern, and northwestern part were stocked without regularity, some with tamarack, others with cedar, and in many of them both trees occurred together. The spruce as a very runty shrub or half tree covered many open bogs and otherwise occurred scattered in the swamps, especially within the moister hemlock area.

FOREST CONDITIONS OF THE PRESENT.

At present these forests are materially changed. More than one million acres have been cleared and put in cultivation. During forty years of lumbering nearly the entire territory has been logged over. The pine has disappeared from most of the mixed forests and the greater portion of pineries proper has been cut.

There is to-day hardly a township in this large area where no logging has been done. In addition to this, the fires, following all logging operations or starting on new clearings of the settler, have done much to change these woods. Nearly half this territory has been burned over at least once: about 3 million acres are without any forest cover whatever, and several million acres more are but partly covered by the dead and dying remnants of the former forest.

In the better hardwood areas (Taylor, Marathon, Langlade counties) the least change has occurred; the former existence of the pine is scarcely noticed and the forest is damaged by fire only where it borders on "pine slashings" or spots where quite a