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God's First Temples. How Shall We Preserve Our Forests? The Question Considered by John Muir, the California Geologist-The Views of a Practical Man and a Scientific Observer-A Profoundly Interesting Article. (Communicated To The Record-Union.)

John Muir

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"GOOE'S FIRST TEMPLES."

HOW SHALL WE PRESERVE OUR FORESTS?

The Question Considered by John Muir, the California Geologist—The Views of a Practical Man and a Scientific Observer—A Profoundly Interesting Article.

[COMMITTED TO THE RECORD-UNION.]

EDS. RECORD-Union: The forests of coniferous trees growing on our mountain ranges are by far the most destructive of the natural resources of California. Our gold, and silver, and copper bar are stored in the rocks, locked up in the safes of all banks, so that notwithstanding the world has been making a run upon them for the last twenty-five years, they still pay out steadily, and will probably continue to do so centuries hence, like rivers pouring from perennial mountain fountains. The riches of our magnificent soil-beds are also comparatively safe, because even the most barbarous methods of wildcat farming cannot effect complete destruction, and however great the impoverishment produced, full restoration of fertility is always possible to the enlightened farmer. But our forest fields are being burned and eaten away, and portions of our forested lands are decimated, and once destroyed can never be wholly restored even by centuries of persistent and painstaking cultivation.

The Practial Importance

Of the preservation of our forests is augmented by their relations to climate, soil and streams.

Strip off the woods with their underbrush from the mountain flanks, and the whole State, the lowlands as well as the highlands, would gradually change to a desert. During rainfalls, and when a heavy snow was melting, every stream would become a destructive torrent, overflowing its banks, stripping off and carrying away the fertile soils, filling up the lower river channels, and overspreading the lowland fields with debris to a vastly more destructive degree than all the washings from hydromorphic mines concerning which we now hear so much. Dripping forests give rise to moist sheets and currents of air, and the sod of grasses and underbrush thus fostered, together with the roots of the plants, bind the hills, check back rushes and melting snow, yet allowing the water to percolate and percolate and flow gently in useful fertilizing streams. Indeed every pine needle and root, as well as fallen trunks and large clamping roots, may be regarded as dams, hoarding the bounty of storm clouds, and dispensing it as blessings all through the summer, instead of allowing it to rush into the streams and lakes, as does the percolation of the rain and snowfall in the open fields.

In Tracing the Belt

Southward, all the phenomena bearing upon this goal goes to show that the dominion of Sequoia is limited. California, as a rule, is not yet passing away. No trees in the woods seem more firmly established, or more safely settled in accordance with climate and soil. They are trees which possess the power of growing heartily on solid ledges, along water courses, in the deep, moist soil of meadows, and upon avalanche and glacial debris, with a multiplicity of thriving seedlings and saplings crowding around the aged, ready to take their places and rules the wood.

Nevertheless Nature in her grandly deliberate way keeps up a rotation of forest crops. Some species develop and die like individuals, as well as plant. Man himself will as surely become extinct as sequoia or mustard, and be as surely succeeded by some other form. But if this kind are, however, exceedingly slow in their movements, and, as far as the lives of individuals are concerned, such changes can be regarded as imperceptible to the sequoia, scarcely further past prime as a species than its companion fires (Picea amabilis and P. grandid), and judging from its present conditions, the wood would thus, as far as I have been able to determine it, our sequoia will live and flourish gloriously until A.D. 15,600 at least—probably for longer—be allowed to remain in the hands of Nature.

Waste and Destruction.

But waste and pure destruction are already taking place at a terrible rate, and unless pro-

nearly the entire forest belt of the range from one extremity to the other, and in the dry westsib, before the coming on of winter storms, before the snows fall, even before the grasses and especially to sequoia, whose loose, fibrous bark catches and buries at once. Excepting the Calaveras, I, last summer, examined every forest region from Moro Rock to the south fork of the Kaweah cut tree to tree, and found everywhere the most deplorable waste from this cause. Indians who once planted the forest, and endeavored to improve the forests, running fires are not even thoughtful to burn off the old logs and underbrush. These fires are far more universal and destructive than we have been led to believe. They sweep through the

The Main Forest Belt

Of the Sierra is restricted to the western flank, and extends unbrokenly from one end of the range to the other at an elevation of from three to eight thousand feet above sea level. The great mass-existence of these noble woods is sequoia gigantea, or big tree. Only two species of sequoia are known to exist in the world. Both belong to Calaveras, one being found only in the Sierra, the other (sequoia sempervirens) in the Coast Range. These trees are thus distinct fossil species have been discovered in the tertiary and cretaceous rocks of Greenland. I would like to call attention to this noble tree, with its accompanying flora. The species extends from the well known Calaveras groves on the north, to the head of Deer creek on the south, near the big bend of the Kern river, a distance of about one hundred and forty miles, at an elevation above sea level of from about five to eight thousand feet. From the Calaveras to the South Fork of King's river it occurs only in small isolated groves, and so sparsely and irregularly distributed that two gaps occur, nearly forty miles in width, the one between the Calaveras and Tulumne groves, the other between those of the Fresno and King's rivers. From King's river the belt extends across the broad, rugged basin of the Kaweah and Tulare rivers, and the lower Kings river, interrupted only by deep, rocky canyons, the width of this portion of the belt being from three to ten miles.

In the Northern Groves

Few young or saplings are found ready to take the places of the failing old ones; and because these ancient, childless sequoias are the only ones known to botanists, the species has been generally regarded as doomed to speedy extinction, as being nothing more than an ex-piring species. But if this is the case, there therefore is no use trying to save it or to prolong its few dying days. This, however, is in the main a mistaken notion, for the Sierra as it now extends to the south fork of the Kaweah, and the species now growing on the range have been planted since the close of the glacial period, and the Big Tree has never formed a greater part of these post-glacial forests than it does to-day, however widely it may have been distributed throughout pre-glacial forests.

Fire, Then, Is the Arch Destroyer

Of our forests, and sequoia forests suffer most of all. The young trees are most easily fire-killed; the old are most easily burned, and the nurse trees, which never rot and would re-grow from burls, if our tenth centenarian, are reduced to ash.