

Community Forest Builder

***Roswell M. Roper, water engineer, has developed the finest example of a
Community Forest outside of Europe***

By Nelson C. Brown

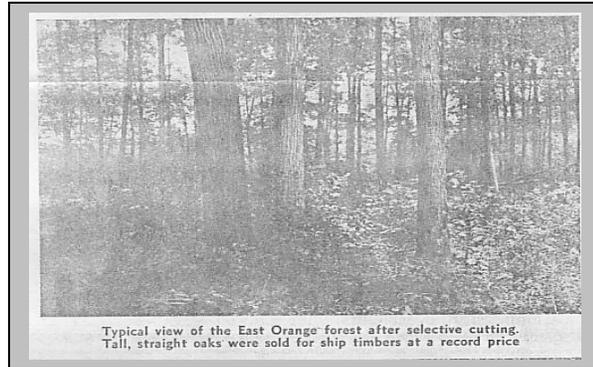
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ROSWELL M. ROPER is water engineer and general manager for East Orange, New Jersey, and his particular field has gained wide recognition for outstanding accomplishments. On the East Orange Water Reserve, for instance he constructed one of the three water spreading intake systems now in existence in this country. But to this and other monuments to his genius, Roswell Roper has added another- perhaps the finest example of a community forest outside of Europe.

Not more than twenty miles from the heart of the country's most densely populated area, within sight of the great skyscrapers of New York, this forestry minded engineer has, within the short span of thirty-five years, transformed 2,200 acres of old fields, pastures, and cutover woodlands into a flourishing forest of many uses and great productivity.



Quietly, modestly and with an Engineer's efficiency, he has planted trees, made cultural and improvements in thinning and installed a system of fire protection. Basically of course the forest was planned to protect the water supply of a city of 75,000 people-to prevent erosion and silting around the lakes and reservoirs. For Roswell Roper's first job is to furnish the citizens of East Orange with 5,500,000 gallons of water daily and keep 70,000,000 gallons in reserve.

But this New Jersey engineer has a personal interest in forestry and conservation, dating back to early life and observations of wasteful land use practices-erosion in the Mississippi Valley and lumbering waste in the pulpwood areas of Nova Scotia and elsewhere. Then too, he once talked to Theodore Roosevelt about good forestry practices. So when in 1909 he set out to develop a watershed forest for the people of East Orange he was fully aware of the possibilities of growing continuous crops of timber and putting the forest on a revenue-producing or business basis while at the same time performing his major job of supplying water for the never failing demands of the faucets and hydrants of Jersey City.

How well he has succeeded is a matter of record. Since 1922, when he first began marketing forest products from the water reserve, total receipts have exceeded \$30,000, or an average of \$3,636 a year. This adds up to almost \$3.00 an acre since half of the reserve is in productive forest, the remainder being lakes and reservoirs, building sites, roadways and streams, a game refuge, a Boy Scout camp, a golf course and sawmill and lumber yard. This sounds like The reported income from a well managed European community forest- and indeed it is.

The sale of cordwood- at \$20.00 a cord-has accounted for \$60,000. of total Receipts, saw logs at \$8,500. In 1944, 250,000 board feet of oak timber sold for \$23.00 a thousand board feet on the stump, the highest price for hardwood recorded in New Jersey up to that time. This is a tribute to the manner in which Roswell Roper has managed this community forest. Indeed, so outstanding is

his forestry program that a number of the country's professional foresters have visited the reserve for observation and study.

But cordwood and saw logs do not tell the whole utilisation story on the East Orange Water Reserve. The sale of piling, poles, and posts has brought in \$3,500. Christmas trees and greens, the latter, the result of trimming the lower branches of thousands of evergreens each year, contributed \$2,500.

Ornamental trees, sold at from \$.50 to a dollar a foot depending upon the species have brought \$4,000. Two thousand dollars worth of natural growth oak, up to two inches in diameter have been sold. There are also miscellaneous items. Since 1941, the forest has been doing its full share in helping to win this war, contributing vitally needed ship timbers from its sturdy oaks, furnace poles for the copper smelters in the Hudson River Bay region and cordwood to aide in the fuel shortage.

The original cost of land and its subsequent management, including fire protection, thinning and reforestation, are chargeable to the cost of protecting the sanitary and continuous flow of water to the people of East Orange. This would have have been done, as it is being done on other watershed forests, whether or not there were any income from the sale of forest products. So the timber revenues are net income-that is, they may be classified as "unexpected" income.

Just thirty-five years from the day Roswell Roper took charge of the reserve, it was the writer's privilege to accompany him on a trip through the forest. Rabbits, squirrels and pheasant scurried about the woodland trails; deer poked their curious eyes around distant trees; and a blue heron settled on one of the lakes. As we walked, Mr. Roper reviewed some of the interesting history of the forest-how, as a young engineer, he first looked over the land purchased to protect the water supply of East Orange. Originally, he said the residents of the city depended upon local wells and springs for their water. Then they organized a private water company to supply their needs, finally going over to municipal ownership with plans to drill wells along White oak ridge near the suburban villages of Short Hills and Millburn. At first a few farms were purchased and seventy-five acres were considered sufficient. Then came a gradual expansion with tree planting-2,000,000 altogether-mostly white pine, Scotch pine and Norway spruce.

But thirty-five years ago, when Mr. Roper first looked over the land, he saw little but old fields, worn out farms and cutover woodlots-a scrubby, ordinary looking area. What to do? Should he leave it alone and let nature take it's course? Could he improve on nature by attempting to grow more and better timber, while at the same time adequately protect the water supply by preventing silting and erosion? These were but a few of the questions that ran through his mind when he first surveyed the area.

The answers are found today in every nook and corner of this outstanding example of how a community forest may serve a city with multiple uses at their best - watershed protection, timber crops, recreation, wildlife management and beauty. Not only do the people of East Orange enjoy an adequate, sanitary and inexpensive supply of water, a source of timber and fuel wood close at hand, a Boy Scout camp and other recreational facilities, and a veritable wildlife refuge, but an assured future in all of these essentials to the American way of life.

This is all the more remarkable when it is considered that from a high point near this forest one may look down upon 20,000,000 people, or approximately one-seventh of the entire population of the United States.(1945 figures) On a clear day from this high point, the range of view includes the entire metropolitan district of New York City, many large communities in Northern New Jersey such as Newark, Paterson, Passaic, Elizabeth and the Oranges, far out on Long Island, southern Connecticut and some of the populous centers of New York's Westchester County.

The area lies just beyond the range of the Orange mountains and is traversed by a number of public highways. It is therefore subject to damage from forest fires started by the public. Because of this, Mr. Roper erected a 100-foot tall fire lookout tower, known locally as "the Sentinel". The observer can throw a switch which starts a siren at headquarters a mile away, where fire-fighting equipment is maintained. This siren can be heard for a distance about two miles and when blown, every employee drops whatever he happens to be doing and rushes to the fire or mans the equipment. Mr. Roper estimates that the fire tower has more than paid for its cost by the quick suppression of many ground fires started by passing motorists or hikers. This reminds one of many European communities which have become "fire conscious" and where people are accustomed to dropping their work to suppress any fires that may start. Thus Mr. Roper has not only his employees, but the local residents conscious of the ever-present danger of forest fires.

Timber in the forest is cut according to a plan of selective logging-that is the larger, older, and more mature trees are removed and the younger and smaller ones left to grow in the openings. The contractors who purchase and cut the timber are experienced and prefer to operate according to approved forestry practices. These men are in the sawmill business and unless timber continues growing in northern New Jersey they will be out of business.

Originally, the woodlands consisted of a large variety of tree species-oak, maple, birch, basswood, hemlock, ash, cherry, beech, and some minor species.



Logging hardwood in the 1940's

.... the intent of forest management has been to encourage the growth of oak, as it produces the most valuable timber. Most of the oak being sold is red, white, black and swamp white. This is excellent quality for ship building purposes, going largely into **PT boats**, Destroyer escorts and other Naval craft.

After the trees have been felled, they are cut into long lengths, and loaded by tractor and cable onto large trucks for transportation to the sawmill, where they are cut into the sizes needed for their specific use. When there is not a good market for furnace poles, many of the tops are cut into firewood for which an excellent market exists in East Orange only ten miles away.

The nearness of the forest to New York City with it's many shipyards and other wood-using industries works of course to Mr. Roper's advantage. As mentioned, he sold during 1943, 250,000 board feet of oak for conversion into timbers for one of the metropolitan shipyards, at a stumpage price of \$28.00 a thousand board feet. The branchy tops were cut up for cordwood and logs not suitable for sawmills were sold by the ton as furnace poles for use in the copper smelters of the district.

Next year, Mr. Roper plans to sell 200,000 board feet at \$24.00 to \$28.00 a thousand. This is an exceptionally attractive stumpage price even for shipbuilding oak. The trees are generally tall, and straight and of good size and quality, the results of many thinning operations during the past thirty years or more.

Roswell Roper is not a Forester by vocation, but very much one by avocation. He is a former Army engineer, attended Lehigh University, and is a builder by nature. His hobbies include photography and guns- but these are secondary to his major interest of forestry, which has been lifelong. One of his three sons, Roswell M. Roper, Jr, "caught the picture when he was a youngster" and as a result became a professional forester. He is now attached to the Allegany Forest Experimental Station. "Perhaps," Mr. Roper will tell you, that for sixteen years we have had a log cabin in the Stokes State Forest, in northern New Jersey, which we built ourselves, may have had something to do with it.

Perhaps, but unquestionably a greater influence was the deep interest in forestry, of Roswell M Roper, Sr.

This interest is evident everywhere in the East Orange Reserve- in the 2,000,000 trees, some of them now more than twenty feet high, that he planted. Around their roots has already developed a mulch of needles, and twigs which are, in many cases, several inches deep, absorbing the rainwater which would runoff if the ground had been left in it's original barren condition. It is evident in the well managed oak forest, in the products it has produced;



Watershed plantings on old fields total two million trees. Red pines planted in 1923, above, are today twenty feet high, below

in \$80,000 in revenue these products have contributed to the city; in roads and paths that are planned for the beautifully wooded areas for the future enjoyment of the people; in the deer herd and other wildlife of the reserve.

Roswell Roper has made a great contribution, in demonstrating the success, financial and otherwise, of a typical watershed type of community forest. Indeed, East Orange, through Mr Roper has pointed the way for engineers or managers of forested watershed properties all over the country to “go thou and do likewise” Also, almost any city or village might emulate to it’s advantage this pioneer adventure in community forests conceived some thirty-five years ago and now coming to its fruition.

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Engineer Roswell Roper and,
above, the 100-foot fire tower

Previous page: Old Sentinel Tower, a 2002 photo.

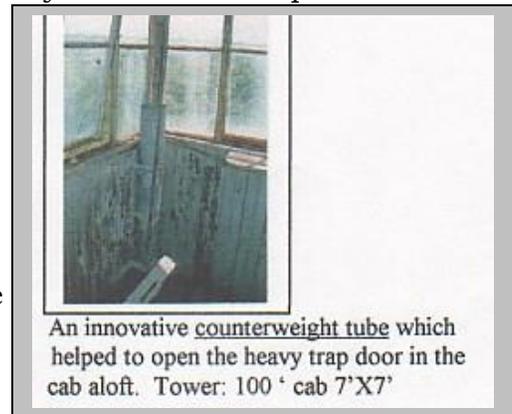
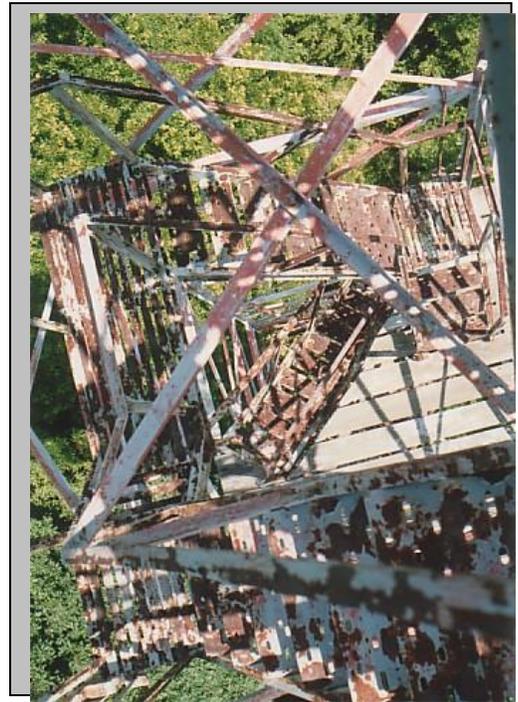
This one-hundred foot steel fire detection tower was constructed on the East Orange Watershed under the direction of Roswell Roper, manager of the watershed that at the time of this 1945 article had been under his supervision for thirty-five years. The original configuration of the tower included a vertical rung ladder for access without any sort of safety cage.! In later years, a steel arrangement of stairs with metal treads- a “tower within a tower” was built, with platforms. A section of the original vertical ladder remains at the top unused. The relatively small observation cab was very Spartan in equipment, having only a small table off to the side. It isn’t known if it had been equipped with a fire-finder, most likely not, as the observer’s concern was only for the surrounding watershed property.

Large diameter electrical cables run up the side, apparently to operate a fire siren for the community. It was equipped with a telephone that at the time of our visit, an old dial type was still inside the cab. Despite it’s unused condition over the years, the structure was still in good condition, all windows and trap door intact, raised by means of a unique counter-weight that was housed in a steel tube.

The view of the watershed area in the 1920’s was substantially different than today’s maze of suburbia in the area. Back then there were still farms, lakes, woods and meadows and a rural surrounding countryside... hard to imagine today when one visits. The 1945 article here has references to shipyards in New York City, and the use of furnace poles for the area copper smelters. The World War was still in progress in April, 1945 and ship timbers and lumber for such things as PT boats and other naval craft was a great

demand. In the sixty-years since this article was first printed, much has certainly changed. Old Sentinel tower at last note, still was standing, in the remaining woods of the East Orange watershed, now a curiosity and perhaps credible to be included with the other “vanishing places” in the State.

The State Forest Fire Service, one of the most active of such departments in the northeastern United States still maintains and operates twenty-one of its own fire lookout stations from Stokes State Forest to Cape May. In 2006 the Department celebrates it’s one-hundred year anniversary since inception on July 4th, 1906.



Bob Spear, Forest Fire Lookout Association October 2005



Above: Map table in the cab
100' up.
Above right: foundations of
the earlier tower.
Right: old dial telephone inside

