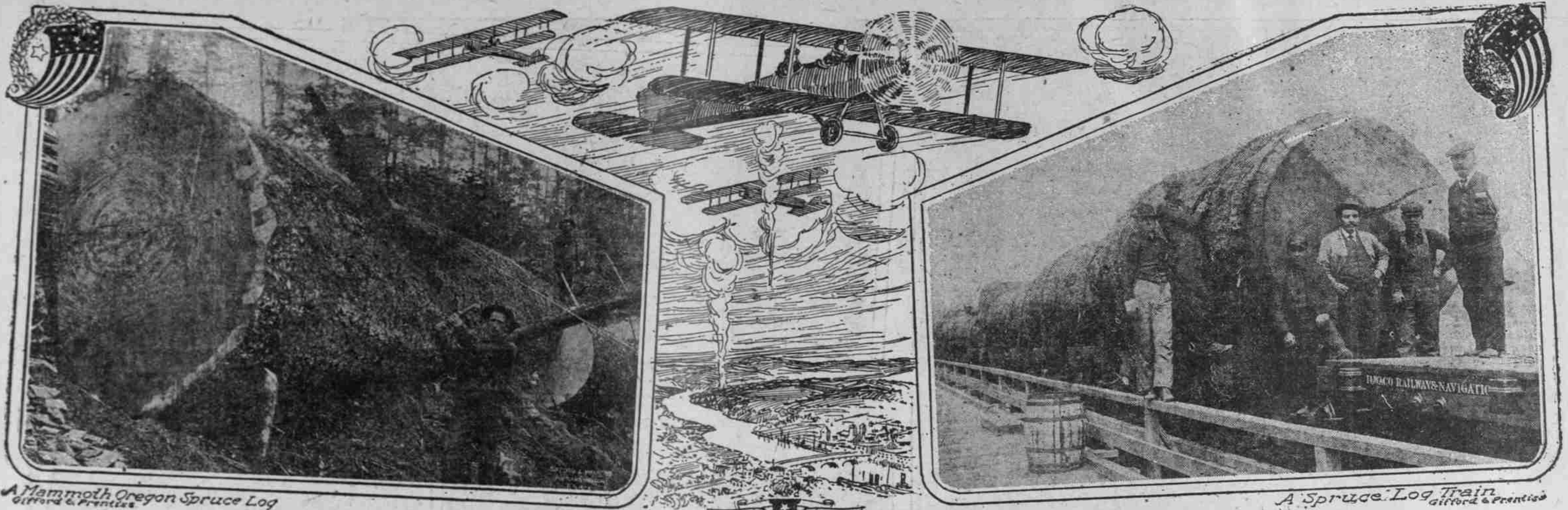


# OREGON SPRUCE TO BE BIG FACTOR IN WINNING WAR

Sixty Billion Feet of Species in State Available for Airplane-Making—Portland Turns Out Parts



A Mammoth Oregon Spruce Log  
Gifford & Prentiss

A Spruce Log Train  
Gifford & Prentiss

WHEN the warplanes of America, the swift duellists of the air, or the heavier bombing and observation planes soar into action on the western front many of them will be fashioned from spruce parts finished in a Portland factory, one of the first of its kind on the Pacific Coast.

The airplane factory of the O. K. Jeffery Company, constructed several months ago, is situated at East Thirty-third street and Broadway, a completely equipped three-story structure, exclusively devoted to the manufacture of airplanes and spruce parts of standard type.

O. K. Jeffery, sole owner of the factory and president of the Oregon Home Builders' Association, is an enthusiast of aviation, a skilled flier and a firm believer in the practical future of the airplane, both from the standpoint of sport and commerce. It is upon this faith that he has based his venture.

#### Only Select Spruce Used.

The factory now is engaged in turning out complete wooden parts for various airplane manufacturers who are supplying the Government with machines—the Curtiss Company, the Standard and the California Aviation Company.

All parts are manufactured from select spruce, in accordance with Government requirements, and comprise beams, struts, webs and engine beds. Pontons also are built for seaplanes, and, although the company has no contract in this particular, it now is negotiating with Eastern factories to construct seaplanes for the Navy. These hydroplanes or seaplanes will be constructed completely at the local factory, ready for the installation of the engine, which the Government furnishes in all cases.

The capacity of the factory is 30,000 feet of spruce a day, or the complete construction of 100 airplanes in 18 months. At present it is employing a force of 20 skilled workmen, but

| EMPLOYEES OF PORTLAND FIRE BUREAU |     |
|-----------------------------------|-----|
| 1918                              | 523 |
| 1917                              | 417 |
| 1916                              | 417 |
| 1915                              | 417 |
| 1914                              | 417 |
| 1913                              | 417 |
| 1912                              | 417 |
| 1911                              | 417 |
| 1910                              | 417 |
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| 1903                              | 417 |
| 1902                              | 417 |
| 1901                              | 417 |
| 1900                              | 417 |

within a short time it expects to increase the number of its operatives to 125 or 150. Several women now are employed, and numbers will be among the increased force.

The pontons for seaplanes are declared by experts to be superior to those produced in other factories, both in stability of construction and fitness of finish. They have a displacement of 2500 pounds. One of the singularities of their construction is the "step" on the bottom, which is designed to enable the pontons to escape from the suction of the water caused by their high speed and to take wing.

#### Complete Planes Turned Out.

The factory has produced one complete plane and is working on two more, although the bulk of its efforts is directed toward the manufacture of spruce parts for Eastern factories. One of the planes now under construction is a flying boat, an actual hull, designed exclusively for use on the water. It will have a cruising limit of five hours and a speed of more than 80 miles an hour.

Mr. Jeffery has been granted authority from the Government to operate on the construction of spruce parts for airplanes, and the factory is turning out a standardized product of the first quality. Permission was made necessary when the Government assumed complete control of the spruce situation, and only authorized factories are permitted spruce wherewith to carry on their work.

During a recent visit to the East, Mr. Jeffery spent several weeks in an inspection of the various large airplane factories and visited Washington, D. C., to familiarize himself with the requirements of the Government and the most advanced methods of airplane construction.

#### Superlative Machines in Goal.

Mr. Jeffery is himself no tyro at the art of piloting a plane. In machines of his own construction, and in others, he has made numerous flights. Trial flights of a hydroplane from the Willamette River last summer made by Mr. Jeffery created much interest and drew many spectators. From his love of the game he brings to the manufacture of airplanes the determination to produce superlative machines, perfect in every part, with the strength of genuine workmanship and tested materials.

The location of an airplane factory at Portland is but in line with the natural advantages of the district, situated in the heart of the Nation's spruce supply, which is, just at present, the bulk of the world's as well.

The selection of spruce for airplane construction and the rejection of other woods is based upon the inherently superior qualities of the former. It is resilient, it is light and it is stubbornly tough. Where fir would shatter to the impact of a missile spruce will give but a grudging bite and maintain its strength in the rest of the injured strut or beam.

Yet even spruce must undergo the most careful selection, scrutiny and actual test before it is judged to be worthy of assembling in an airplane. The ideal timber sought by makers and



Airplane Factory of  
O.K. Jeffery Co.



An Interior View  
of Factory

## NO SUBSTITUTE FOR SPRUCE IS FOUND

Strength, Toughness and Lightness Are Chief Qualities—Oregon Spruce Output By E. T. Allen, of Lumber Committee, Council of National Defense.

"SHE flies with her own wings" is Oregon's motto, but the founders of the commonwealth who placed these prophetic words on the state seal hardly foresaw that in a few decades Oregon also would furnish, from her forests of spruce, the wings to carry half the civilized world victorious through a war for liberty.

Mastery of the air is now seen by all to determine the end of the European conflict; the United States and her allies are bending every effort toward vast and invincible aerial navies; and the supreme test is being placed squarely on the Pacific Northwest where alone can be found the material for their construction. Over every Oregon soldier and those who fight with him hover speed scouts, bombing machines, battle planes and observation craft—"the eyes of the army"—built of Oregon spruce. Upon their efficiency and their number depends his life and that of the cause for which he fights.

No substitute for wood has been found to combine the strength, toughness and lightness essential in aircraft construction. No wood equals spruce in the

proper balance of these qualities. No spruce except that of the Pacific Northwest yields them in sizes large and clear of defect. No defects are permissible. The fate of nations depends on the outcome of battles.

Battles and artillery fire depend on exact information concerning the enemy's strength, movements and fortifications; obtainable only from the air. Aerial observation is possible only when protected by fighting aircraft against hostile aerial attack. This air fighting is individual and the skill and daring with which it is conducted depends upon the perfection of the machine. The man whose life and that of his army lie with his ability to twist, loop and dive like a bird in a duel perhaps three miles above the earth, subjecting his frail machine to every conceivable strain, must feel that it is as near perfect as its builders could make it. No chances can be taken with knots, crossgrain or other defects in beam or strut. This is

why the war against Germany must be won with Oregon and Washington spruce.

There are many American spruces, but the species in demand is Picea Sitchensis, or Sitka spruce, found on the Pacific Coast from Northern California to Alaska, and reaching its best development in Oregon and Washington.

#### Spruce Is Scattered.

Oregon has perhaps 60,000,000,000 feet of this species, but little is in pure spruce forests easy to reach. Mixed with other species, it is scattered irregularly from the high Cascades to the sea. Size and quality are also irregular. Trees 12 feet in diameter and 250 feet high are not uncommon, the machine to every conceivable strain, must feel that it is as near perfect as its builders could make it. No chances can be taken with knots, crossgrain or other defects in beam or strut. This is

most desirable are the more cylindrical, slower-growth trees on the hills.

Since it is seldom practicable to log spruce alone, because of the prohibitive expense of railroad and other operations to select trees here and there and leaving the fir, cedar and hemlock untouched, the quantity available has always been the proportion which comes in with other logging. Of the 4,000,000,000 to 6,000,000,000 feet of lumber produced annually in Oregon and Washington, 200,000,000 to 300,000,000 only has been spruce. Of this, perhaps 15 per cent is suitable for aircraft purposes, which demand not only freedom from knots, sap-pockets and like defects, but absolutely straight grain and a growth not more rapid than six annual rings to the inch. Even the best logs yield only a portion near the outside of such material; many yield none. Much fine looking and clear timber is of too rapid growth and much has a twisting grain.

So, while the prices paid for aircraft lumber seem high, they may afford no profit to the lumberman who devotes much effort to getting only 50 or 100 feet of it from every 1000 feet he cuts, and only an ordinary profit to him who is lucky enough to get 150 or 200 feet, which is considered good. The majority is always left to go into low-priced box lumber, with a little "shop" or perhaps clear grades, which are, however, coarse or cross-grained. And the task which has been assigned to the spruce industry of the Northwest—to treble its production of strictly aircraft material—involves tremendous difficulty.

It means that under conditions of shortage of labor, rails and every commodity entering into production, there must be a trebling also of the quantity obtained and marketed of the other species, and of the 55 per cent or so of spruce, which will not make aircraft lumber but must come out with it.

Such is the essential part in winning the war which has been imposed upon Oregon. We have the spruce upon which victory depends. Our own and our allied governments are willing to pay us millions of dollars if we can get it out quickly.

#### Asks to Help Win War.

As Mr. Howard E. Coffin, chairman of the Aircraft Production Board at Washington, has written the writer of this article: "Both now and for the duration of the war the men who wield an ax in the production of aircraft spruce will be rendering a service far in advance of the wielding of a gun, even in the front trenches in France. You cannot too strongly preach this doctrine."

Oregon mills now cutting aircraft spruce are at Brighton, Astoria, Bay City, North Bend, Portland, Tillamook, Marshfield, Wheeler, Coquille, Nehalem, Prosper, Bandon and Seaside. The largest production is at Brighton. Clatsop, Coos and Tillamook counties furnish most of the logs. While Willapa Harbor in Washington remains the single largest producing district of the Northwest, the Coos Bay, Columbia River and Tillamook districts in Oregon come next. Grays Harbor and Puget Sound follow in respective order, then the Siletz district in Oregon again.

W. B. AYER, President M. F. HENDERSON, Vice-President F. H. RANSOM, Treas. and Mgr. K. H. KOEHLER, Asst. Treas. J. W. FOWLER, Superintendent

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