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# THE SPRUCE PRODUCTION DIVISION

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**A**fter several years of trying to stay out of the war in Europe, on April 6, 1917, the United States became involved in the “War to End All Wars,” which we now call World War I. The Spruce Production Division presents an anomaly unique in the annals of American history. This home-front

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division was part of the U.S. Army Signal Corps' massive commitment to supply high quality spruce wood for the production of Allied combat airplanes and fir for ships.

The ever widening European war saw the introduction of a great many new weapon systems by the various warring countries. Tanks, poison gas, and submarines were successfully tested and used with great devastating power by the major opponents. One of the most daring weapon systems was the use of the new and practically untried aeroplane. New airplanes were designed with increased engine size, speed, carrying capacity, maneuverability, and operating altitude. They also constructed and tested airplanes with several styles of wings, including monoplanes, variations on the standard biplanes, and even triplanes. Internally, the airplanes were made from spruce wood, especially the wing spars and fuselage frames. In addition, spruce was used for laminating the wooden airplane propellers.

## THE U.S. CONTRIBUTION AT HOME IN “THE WAR TO END ALL WARS”

The declaration of war by the U.S. led the President to establish a large army to fight across the sea. The easiest method to enlarge the small standing army was to institute a draft system. Men were also encouraged to enlist in special military units, such as the 10th and 20th Forestry Engineers and the Army and Marine flying divisions. These forestry and flying units were sent to Europe to provide needed wood for the allied armies (trenches and railroads) and fly those magnificent, but deadly, flying machines.

In spite of some heavily forested areas in Europe, the warring European allies could not supply enough high-quality wood for the thousands of new airplanes that they were constructing. Because of the large standing volume of wood in the Pacific Northwest, the United States began to increase its

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*Living spruce in Raymond, Washington.*

production of airplane-quality wood. At the beginning of the war, large quantities of old growth, evergreen trees were found in the Pacific Northwest. As early as 1916, the Pacific Northwest was the primary supplier of aircraft-quality wood to Great Britain, France, and Italy. These three countries requested, in order of preference, the following wood species: 1) Western Sitka spruce and cedar; 2) New England and Southern spruce; 3) Douglas-fir and other substitutes.

The most important of the numerous tree species for airplane construction was the Sitka spruce. General Brice P. Disque best stated the reasons for preferring the Northwest variety of spruce: Sitka spruce, generally found in scattering clumps of trees in the forest of the Pacific Northwest, proved to be the best of all woods for airplane construction. It qualified better than any other wood in a combination of the necessary qualities of lightness, strength, resiliency, long and tough fibre and would not splinter when struck by a rifle bullet (Disque c.1919: 1).

Sitka spruce is native along the coasts of Northern California, Oregon, Washington, British Columbia, and Alaska. Soon after the beginning of the war, it became evident that Washington and Oregon “had a virtual monopoly of the world’s supply of this suddenly invaluable resource (Hyman 1963: 44).” Yet the Northwest lumber mills were unable to cut and saw enough spruce wood for the demands of the Allies, who requested a monthly production quota of 10,000,000 board feet by October 1917. The inability of the Northwest

mills to produce the required spruce wood was, in part, caused by a general woods labor strike. In this case, the lumber, logging, and sawmill divisions of the Industrial Workers of the World (IWW), also called the “Wobblies,” and the American Federation of Labor (AFL) struck the lumber companies on July 16, 1917. The unions were not totally responsible for the decrease in lumber production. The decline was also caused by the mill owners, some of whom held back available wood supplies in order to increase the product prices and profits. “Neither lumberman nor worker, AFL or IWW, had clean hands (Hyman 1963: 52).”

The unions were primarily striking for an eight-hour working day, better working/living conditions, and recognition of the union. Summer was the usual time of year when loggers “make hay,” that is, they harvest the most trees, process them into lumber, and extend their operations deeper into the virgin forests for operations during the winter and spring. As a result of the summer strike, the production of spruce wood in 1917 was about 3,000,000 board feet. Only about ten percent (300,000 bd. ft.) of the spruce was of aircraft quality (Historical Division 1949).

Soon after the U.S. entered the war, former Captain Brice Disque volunteered to return to active duty, hoping for an infantry command in Europe. On May 7, 1917, he was summoned to Washington, D.C., to confer with General Pershing and chief-of-staff General James G. Harbord. They were able to convince Disque to remain a civilian, yet they assigned him



*Colonel Brice P. Disque at the Spruce Production Division Headquarters in Portland, Oregon.*

to special, secret duty in order to study the labor unrest in the Pacific Northwest. Although Disque was crest-fallen not to have been given an overseas command, he had the understanding that if the labor and lumber production problem would resolve itself, he could then be allowed to join the war effort in Europe.

Within a few months of study, Disque found that the labor-management impasse was not getting any better. By the autumn of 1917, he came to believe that resolving the lumber situation was crucial to the defeat of the Central Powers. The unofficial *History of Spruce Production Division* stated that:

No one realized, no one even dreamed that before this single item [aircraft-quality spruce wood] could be procured, an army must be sent to make war in the virgin forests, a vast industrial machine must be built up, and a great story of pluck and grit, of daring initiative and patient resourcefulness must be carved out (*History of Spruce Production Division* 1919: 3).

#### FORMATION OF THE SPRUCE PRODUCTION DIVISION

After Disque's secret study and reports of the lumber situation in the Pacific Northwest, the U.S. Army Signal Corps became involved in resolving the labor-management question. Simply stated, he recommended that an army of soldiers be placed in the woods in order to speed the production of an adequate spruce supply for the allies. The woods soldiers were to remain neutral, neither favoring the lumber owners nor the unions, at times overseeing sawmills against the threat or reality of industrial sabotage by unions), while mostly building railroads, cutting trees, and sawing the logs into lumber.

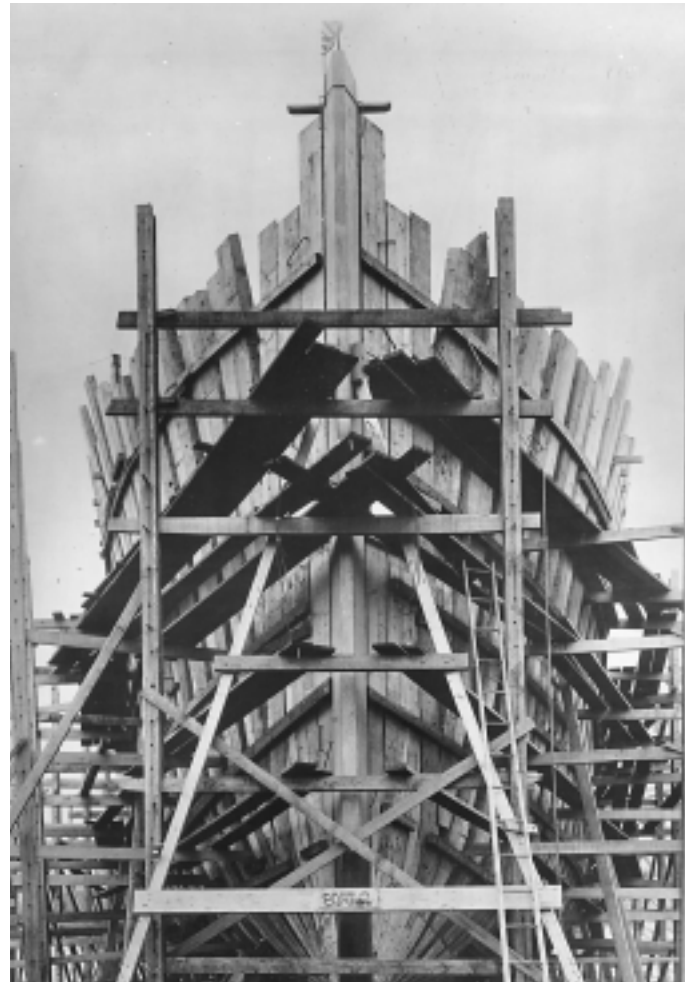
On September 29, 1917, Brice P. Disque was reinstated into the Army as a Lt. Colonel. He proceeded to Portland, Oregon, and met for the first time with several of the parties involved in the labor-management problem. On November 6th, newly promoted Colonel Disque was given the command of a new military unit to be called the Spruce Production Division for the production of spruce lumber for airplane construction and

Douglas-fir lumber for ship construction. Yet it took another month of behind the scenes efforts to fully establish and staff the Division. Thus, in November 1917, the U.S. Army Signal Corps:

stepped into the Northwest's labor picture because no other agency on any level of government seemed to be arriving at a solution quickly enough. In order to achieve the soldier's goal of increased timber production, the Army...brought a kind of Progressivism in khaki to the tall timberlands of the Pacific Coast (Hyman 1963: 16).

Headquarters for the Spruce Production Division was at the Yeon Building in downtown Portland, Oregon. Across the Columbia River in Vancouver, Washington, was Vancouver Barracks, which was the main operational center for receiving, training, and disbursing spruce soldiers. In early 1918, the Vancouver Barracks became the location of the major Spruce Production Division spruce sawmill called the Cut-Up Plant, which was constructed and operated by spruce soldier labor.

**Spruce Soldier Camps.** There were scores of spruce soldier camps scattered throughout the Pacific Northwest. Many of the camps were in association with or adjacent to existing lumber company camps, while a number of spruce tent camps



*A World War I ship constructed with Douglas fir at the Portland Shipyard.*



*Spruce camp near Newport, Oregon.*

were constructed close to Army railroad projects, especially in mid to late 1918. The camps at the private logging and mill sites came under the requirements specified by the U.S. Army.

Basically, each camp was to have standard sleeping facilities, latrines, bathing and messing (eating) facilities, and recreation rooms. If the existing private camps did not have the proper facilities, the Spruce soldiers would build their own structures. Generally, the troops were to be sent in groups of 25 or larger and the camps had to be of adequate size to accommodate all the spruce soldiers (Bulletin No. 5, 1917). Lloyd Lamb, a former Spruce Division soldier, described a typical spruce tent camp:

It was a...square tent, with a...three foot railing around and [a tent canvas] that came right over the railing and down...it kept out all the wind and came up to a point...with a hole in the top so you could put in a pipe for the stove you see....There wasn't much danger of fire, and anyway...you're there all the time except when you go to work. So you can watch it pretty close. Then those camps were every two miles apart, with about two hundred men in each camp...it varied a little bit, but not very much (Lamb 1979: 2).

Inspectors were sent to each of the camps to investigate the facilities and require appropriate actions if the camps were below standards. Life in bunk house camps was somewhat different, as described by Private Arthur C. Newby, with the 430th Spruce Squadron at Camp B, Snoqualmie Falls, Washington:

We have an excellent camp here, which is clean and sanitary. We live in bunk houses built on car trucks, about sixty feet long and divided into three rooms each. There are ten men to each room. We have all the modern luxuries—steam heat, electric lights, hot and cold water, and last but by no means least, we have the very best eats on earth. They give us all we want and 'variety' is the password (Newby 1918: 4).

**Recruiting the Spruce Soldiers.** Initially, Colonel Disque had a great concern about the recruitment of soldiers into the Spruce Division. Many thousands of men had enlisted to fight the "Huns," while others were being drafted into the infantry. In addition, during the summer and fall of 1917, the Army Engineers were recruiting experienced woodsmen, including

men with the Forest Service, into the newly formed 10th Forestry Regiment. After a series of struggles with the Corps of Engineers, Colonel Disque was able to stop the active recruitment of experienced lumbermen into Engineer Forestry Regiments (Disque 1917 and Hyman 1963). This enabled the newly formed Spruce Production Division to proceed to recruit or reassign several thousand experienced woodsmen for work in the woods of the Pacific Northwest. Private Arthur Newby, a former U.S. Forest Service employee, described his joining the Spruce Production Division:

When the War Department called for volunteers to go into the forests of Oregon and Washington and cut timber for aeroplanes, I thought that my experience might be worth something, and so I transferred from the Coast Artillery into the Spruce Division, and here I am. There are about fifty boys here, a fine bunch, and they sure are cutting timber like real loggers...We are all satisfied, and we are glad to be here doing what we can to beat Fritz—and we will (Newby 1918: 4-5).

Initially, the Division only took those soldiers who were "men above draft age and not over 40 years of age and of good logging or lumbering experience... (U.S. Army, Spruce Production Division, General Orders 1918)." By the summer of 1918, the soldiers could not enlist or be inducted into the Division if they were in draft status Class 1, unless they were rated as limited or special class service. Yet the Division could also take those who were in Classes 2, 3, or 4, if they were in good enough physical condition to be assigned to manual logging or railroad construction duty. In some cases, the men were classed down because they could not read or write, but the Division encouraged a number of the soldiers to improve themselves through schooling at nearby towns.

In September 1917, the Division manpower strength was authorized to be 10,317 soldiers, including both commissioned officers and enlisted men. On May 23, 1918, a new authorization was given to increase the personnel to 28,825 men, which it achieved.

## UNION AND MILL OWNER REACTIONS

The Spruce Production Division tended to place the soldiers in the hands of the Northwest lumber producers. Colonel Disque thought that by placing these men in the lumber camps, he would achieve several objectives. As the primary need was to increase the production of aircraft quality lumber, the soldiers would have several beneficial effects: Reduce the amount of union sabotage and violence, protect the industrial base, protect the forests from fire, fill the supply gaps of lumber workers who had gone off to war, and increase production of spruce to pre-1917 levels.

However noble the thoughts were for the soldiers in the woods, the reality was that the unions and the lumbermen were initially against the Division. The unions felt that the Army, and thus the government, were in essence strikebreakers, while the lumbermen believed that the Army would impose too many restrictions on the production and prices of lumber. Colonel Disque, with his propensity for organizational



PHOTO BY A. M. PRENTISS; COLLECTION OF THE AUTHOR

*This army truck hauls a rived spruce log over the hand-built plank road.*

genius and good expert advice, listened with great interest to the different sides of the argument, then presented his thoughts of using the Army in the woods.

Initially, everyone was shocked that the Army would be used for the direct production of lumber, but by a careful and skillful strategy, Disque was able to use the principle of loyalty to the United States and the necessity of drastic actions in the war emergency to overcome any opposition. Although it was “touch and go” for the first few months, the opposition eventually crumbled and in most cases actively supported the spruce production effort.

Colonel Disque proposed that the Spruce Production Division would be helpful to both owners and laborers. For the lumber owners and operators, the soldiers were to be used to protect and log the forests, protect the mills from the unions, operate the machinery, and supplement the manpower in the mills. For the unions, the soldiers were to obtain better working and living conditions, an eight-hour work day, stable wages between companies and areas, and more favorable status.

Advantages gained from the Army by the mill owners included a stable labor pool, extra experienced workers for their operations, and an extension of their logging operations. The unions gained the following advantages: soldiers who worked at private companies would receive a new standard woods-worker wage rather than Army pay, the pay was to be made by the companies rather than the government, and inspections and cleanup of working and living conditions would be made by the Army. Simply stated, the Spruce Production Division, besides working to increase the production of airplane quality wood, ended up restructuring the

Pacific Northwest lumber industry. This great war effort had many lasting effects in labor-management relations for the next two decades (Hyman 1963 and Tyler 1967).

#### **FOUNDING OF THE LOYAL LEGION OF LOGGERS AND LUMBERMEN**

The idea for a unique, patriotic, government labor union—comprised of civilians, military, and management—to counteract the IWW sprang from the minds of Colonel Brice P. Disque and Carleton H. Parker. The latter was an employee of the University of Washington who also worked as an examiner for a Federal agency known as the Cantonments Adjustments Commission. Together, Parker and Disque incorporated the ideals of union and management cooperation and negotiation. Hyman noted that:

Parker and Disque envisaged organizing all the entrepreneurs and workmen of the entire region into an association for patriotic purposes, which would be affiliated with the Army division of uniformed wood-cutters. By mixing soldiers and civilian loggers...the commander might construct an arbitration mechanism within the division and the affiliated civilian organization that would outlast the war and bring industrial peace to the embattled Northwest (Hyman 1963: 115–116).

On October 18, 1917, in the office of the president of the University of Washington, the major ideals for an actual union

were worked out. The proposed union was to be entitled the Loyal Legion of Loggers and Lumbermen (LLLL), or simply the 4Ls. The name met with Disque's approval because it did not use the term union in its title, and it implied an affiliation between both the workers/loggers and the owners/lumbermen. The new "union" met with disapproval from both sides of the labor-management spectrum, but within six months, the persuasive abilities of Colonel Disque and new converts among both labor and management led to almost all the owners and over 100,000 woods workers joining the Legion. The 4Ls outlasted the Division by almost 20 years, eventually dying in the Great Depression and the "New Deal" of President Roosevelt.

## GETTING THE SPRUCE OUT

Physically getting the spruce out to the sawmills presented an array of problems. Generally limited to a relatively narrow fringe of Pacific Northwest coastal land, much of the spruce habitat was in the remotest, most inaccessible portion of the country. Often the trees were found in great canyons and ravines, amid steep, rock-hard slopes with impenetrable underbrush. Moreover, much of the spruce country received an annual rainfall that averaged 135 inches (11 feet). In addition to the aspects of topography and climate, was the very nature of the spruce stands. Typically, when the spruce trees were found, they were mixed with other evergreen species. An average stand of stalwart giants was not over twenty percent of all the timber. The relatively small demand for spruce wood before the war provided little incentive for developing an exclusive spruce industry. Most of the spruce lumber produced previous to the war was as a by-product of clearcut logging of the more desirable evergreen species, such as Douglas-fir and cedar (*History of Spruce Production Division 1919*).

Owing to the sheer size of the large old-growth spruce trees, the impeding conditions of its habitat, and the heavy, immediate demand for aircraft quality spruce lumber, the Spruce Production Division had to initiate a series of new methods for extraction and transportation of the precious logs. One of these methods was to split (rive) lengthwise the fallen spruce into smaller, more manageable pieces for easier transportation. The riving process reduced the log to about one-sixth of its original size. The resulting pieces were then hauled from the forests by trucks or teams on wooden plank (corduroy) roads to existing highways and railways for shipment to the sawmills.

The Spruce Division's use of trucks and cars was the first large scale use of motor vehicles in the Pacific Northwest. "The giant fleet of motors...carried all the supplies to the soldiers at the lumber camps, transported heavy machinery to new camps and hastened from place to place in a never ending round of duties...The emerging fleet of express cars...were Ford motor cars. The spruce division had 105 of these cars in their service for light duty...Ambulances, motor driven, of course, played almost as active a part in bringing quick [sic] attention to the workers as they did on the battlefields (*Oregon Journal*, April 6, 1919)." Lloyd Lamb, a former spruce soldier, described the building of a plank road:

the main thing was, was we had to build the road for the trucks first. Now the roads, comprised of two planks

wide on each side with a piece going across underneath because a lot of this ground was soft and it was new ground...all new ground...and all of it was soft (Lamb 1979: 3).

The Division also initiated selective logging of the scattered spruce trees. Colonel Disque believed that this method seemed the only practical way of securing great quantities of high grade spruce in the largely inaccessible stands (*History of Spruce Production Division 1919*).

**Railroads To Solve the Transportation Problem.** Ultimately the Division came to believe that many of the transportation problems from the woods to the mills could be solved by the construction of an elaborate system of railroads. The development of railroads enabled whole logs to be transported from the woods to the sawmills. As originally conceived, the railroad construction program called for the completion of thirteen railroads in Washington and Oregon, totaling 173 miles of main line and 181 miles of tributary lines or spurs (*History of Spruce Production Division 1919*). Seven of these railroads were planned for Western Washington and six for coastal Oregon.

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The U.S. Army intended most of these railroads to be temporary structures. In some instances, to minimize cost and construction time, sections of railroad were built entirely on logs, piles, or stringers supported by log cribbing. Railroad No. 1 on the Olympic Peninsula, now on the Olympic National Park) was the longest of all the spruce railroads. During the summer of 1918, at the height of railway construction, ten thousand spruce soldiers were working on the various railroads in the two states.

### SPRUCE RAILROAD NO. 1

Claims that the Olympic Peninsula contained "one of the greatest stands of virgin timber in the United States (*Timberman 1918a*)" were substantiated by a Forest Service inventory of Sitka spruce stumpage. While the Allies' demands for aircraft-quality spruce steadily increased, the Spruce Production Division under Colonel Disque's leadership, took steps to penetrate the vast and wild spruce belt in Clallam County. The building of a railroad seemed the only way to open this great spruce reserve on the north Olympic Peninsula. This area of land covered some 300 square miles and contained nearly six billion board feet of standing timber.

In May 1918, a cost-plus contract was awarded to the New York-based Siems, Carey-H. S. Kerbaugh Corporation. The

contract called for the delivery of 250 million board feet of spruce flitches (22-foot lengths of delimbed spruce) by November 1919. Accomplishing this Herculean feat would require building 175 miles of railroad and two sawmills, capable of daily producing a combined total of 250 million board feet of milled lumber. The actual logging operation required some twenty camps and a working force of 6,000 men. This contract with Siems, Carey-H. S. Kerbaugh made the Clallam County operation the largest single spruce production effort of the war (*History of Spruce Production Division 1919*).

The Spruce Division played a vitally important role in the contract specifications, established regulations for working conditions, furnished supervisory leadership, provided medical facilities, and supplied the subcontractors with some 3,600 spruce soldiers. Spruce soldiers, although generally inexperienced in the field of construction work, completed much of the clearing, grubbing, and grading of the roadbed for the subcontractors. The spruce soldiers also laid almost all of the steel track.

More than \$10,500,000 was expended, to not only purchase

the machinery and supplies, but to buy expertise and experience. Under ordinary circumstances a project of such magnitude would require from one to two years, yet Spruce Railroad No. 1 was rushed to completion within six months. The speed with which the Spruce Railroad No. 1 was constructed awed both builders and onlookers alike. At the eve of the project, construction and lumber experts unanimously agreed that to complete such a task in such a short time was bordering on the absurd, even with the best organizational and financial backing that the Army could muster.

What the Spruce Production Division in its Clallam County operation did not succeed in doing, because it never had a chance, was to produce spruce. With 36 miles of main line completed, 70 miles of logging railroad graded, the Port Angeles mill 70 percent completed, machinery en route to the Lake Pleasant mill site, and 150 million board feet of logs in various stages from standing to mill, all activity abruptly ceased. Not a single spruce log passed over Spruce Division Railroad No. 1 during World War I.



PHOTO BY A. M. PRENTISS, NEWPORT, OREGON; COLLECTION OF THE AUTHOR

*Loading spruce lumber onto a rail car at the Warren Spruce Company, Portland, Oregon. The wide boards were shipped to airplane manufacturers.*

## END OF THE WAR AND THE SPRUCE PRODUCTION DIVISION

In the eleventh hour of the eleventh day of the eleventh month in 1918, an armistice was signed between Germany and the Allies. The Spruce Production Division's felling of spruce trees was discontinued on November 12, 1918, one day after the Armistice was signed. The Armistice ended hostilities and brought to a close the war to end all wars.

Construction work in nearly all contingents of the spruce operations ended immediately. The movement of spruce soldiers from the far flung corners of the Pacific Northwest began in December, although some men remained behind to complete special projects. Spruce squadrons were sent to Vancouver Barracks for discharge. Equipment and machinery at all locations were removed and taken to Vancouver Barracks for later sale.

Throughout Washington and Oregon procedures went into effect to demobilize the Division and sell off the government equipment and structures. Only a few officers remained behind to facilitate the liquidation of government property. Vancouver Barracks was flooded with prodigious amounts of machinery, equipment, and tools. Equipment valued at over 12 million dollars was sold at the largest advertised sale of government property since the sale of Panama Canal equipment (*History of Spruce Production Division* 1919; *Timberman* 1918b; Van Dorn 1926).

**Charges of Waste and Fraud.** A hardbound history of the Division was printed in 1919 that was entitled *History of Spruce Production Division, United States Army and United States Spruce Production Corporation*. Harold Hyman noted that "this is not a government publication. Mostly the handiwork of then Major Cuthbert Stearns, it was assembled by Legion personnel in 1919 as a defense against congressional criticism [and a Congressional inquiry] (1963: 3 fn)." In the midst of and following the demobilization of the Spruce Production Division, "Congressional investigations broadcast allegations that unscrupulous entrepreneurs had garnered extraordinary profits from the nation's needs (Hyman 1963: 5)." For months following the closing down of spruce operations, General Brice P. Disque and others of the Division answered to charges that the million dollars spent to obtain the lumber was unnecessarily extravagant and wasteful of taxpayers' money. Especially under fire was the four million dollars spent on the Clallam County Railroad No. 1. There were also charges that Disque showed favoritism toward both the Siems, Carey-H. S. Kerbaugh Corporation and the Chicago, Milwaukee and Saint Paul Railroad (*Portland Oregonian* August 25, 1919). In time most of the charges brought against Disque proved to be farcical and based on personal prejudice and vendettas (*Oregon Journal* September 16, 1919).

**Positive Accomplishments.** Though its life span was brief, there were many positive contributions made by the Spruce Production Division. In all aspects of the Pacific Northwest spruce operations, the U.S. Army Signal Corps Spruce Production Division performed impressively, accomplishing amazing feats. The operation took place at a time of great national duress, when the labor force was stretched thin due to heightened war activity at home and abroad, and the lumber

industry was struggling to recover from one of the most unsettling labor-management conflicts in U.S. history. Confronted with some of the most rugged country in the Pacific Northwest, trees of immense proportions, choking vegetation, relentless rains, and a time schedule that few believed could be met, the Spruce Production Division succeeded in providing millions of board feet of needed wood for the war effort.

Although its fifteen month existence was brief, its accomplishments were considerable. In retrospect, the Division accomplished exactly what it set out to do, that was to increase the production of aircraft-quality spruce lumber. According to some estimates, the production of aircraft lumber increased 5,000 percent in a little more than a year (*Loyal Legion of Loggers and Lumbermen* 1918–9). Between November 1917 and October 1918, spruce production jumped from 2,887,623 to 22,145,823 board feet monthly. For the same twelve month period, a total of 143,008,961 board feet of spruce was shipped from the Northwest forests, including two small units from Alaska and California. The total spruce lumber was produced from the following states (*History of Spruce Production Division* 1919: 55):

Washington	88,471,594 board feet
Oregon	53,718,591 board feet
Alaska	589,236 board feet
California	229,540 board feet
TOTAL	143,008,961 board feet

To accomplish this feat, the Division left its mark on the land by constructing around 60 temporary military camps, scores of roads and bridges, and 13 railroads with some 130 miles of track (French 1919 and Historical Division 1949). It was proclaimed the most ambitious railroad project ever attempted in the Pacific Northwest. Never before were "so many miles of railroads conceived, located, surveyed, cleared, graded, constructed and completed all within one season (*American Forestry* 1918: 523)." According to the Loyal Legion's monthly bulletin: "It will be years, perhaps, before the record achieved by the Spruce Production Division in building railroads under adverse conditions is equaled (*Loyal Legion of Loggers and Lumbermen* 1918–9: 11)."

## POSTSCRIPT

After the last spruce soldier was discharged from duty in the Spruce Production Division, the full impact of the operation was expressed in many subtle but significant ways in Washington and Oregon. The permanent rail lines opened more than one billion board feet of spruce, and many more billions of board feet of other evergreen species to future development (Compton 1919). There was a lasting effect on the lumber industry and lumber production. Although membership in the Loyal Legion of Loggers and Lumbermen declined after 1919, its constitution, by-laws, code of practice, and working methods continued as the controlling factor in the lumber industry in the Pacific Northwest until the Great Depression. Nearly fifteen years after the close of World War I, one writer observed, "the basis of operation which General Disque set up for emergency purposes developed into the classic agency of labor relations in the American industrial field (Dotson 1933)."

The war brought about a new appreciation of the value of the nation's forest and forest products. The increased availability of spruce from the Northwest forests, and wartime technological developments in the aircraft industry, stirred new interest in potential military and civilian uses of the airplane. The Boeing Company headquartered in Seattle, as well as airplane manufacturers in the Midwest and East, took measured steps to enter the commercial aircraft field. Prophetically, the December 1918 issue of *The Timberman* observed: "It is only 20 years since the automobile industry began its magical development. The future may hold in store a parallel in the upbuilding of commercial airplanes." Little did they know how much Boeing would be a major leader in this future scenario.

This brief overview of the Spruce Production Division concludes with a statement about the massive home-front effort fought by 30,000 spruce soldiers in the evergreen forests of the Pacific Northwest:

Such, then, is the story of the Spruce Production Division. It is a war story without the horror of devastated cities and of torn and bloodied men, and without the glamour that goes with victorious achievement upon the field of honor. And yet—this Northwest woods has become a field of honor; without the heroics, but not without the heroic.... There is the thrill of achievement; of men battling with Nature, with Nature's forces, and Nature's seeming whimsicalities. They fought, these lumberjacks in khaki (*History of Spruce Production Division* 1919: 116–7). □

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