

Isaac oral history cont'd

p. 7

p. 8

p. 7

p. 10

high school, occurred an extraordinary episode. His older brother was injured so severely in a train wreck that he needed absolute rest and quiet, and young Leo took over his care. The Isaac brothers withdrew to upper Michigan to a cabin which could be reached only by boat. For nearly two years, the pair of them roughed it there, canoeing and hunting and fishing as the brother's ~~strength~~ <sup>health</sup> gradually became robust again.

← Romances crx

Such a young manhood may have been the whetstone for Leo Isaac's perceptive powers. Thornton Munger, himself a veteran woodsman, noticed that Isaac "was an exceedingly sharp observer. He could see little one year old seedlings when the ordinary person would pass them by...."

{

After the stint in the north woods, Isaac went to the University of Minnesota for a degree in forestry. World War One intervened, and he was shipped with a number of other forestry students to Fort Vancouver, Washington, where they would learn to inspect the ~~wooden~~ <sup>SPRUCE</sup> wingbeams then used in military planes. Finishing up his college work after the war, Isaac returned to the state of Washington to start with the Forest Service in the Okanogan National Forest. After four years came the chance to transfer to the Wind River Experiment Station, and Isaac gladly took it. He arrived on the job in early May, 1924, just before the Pacific Northwest Forest Experiment Station came into being and absorbed the Wind River facility.

← Hall crx

Isaac oral history cont'd

pp. 11-12

p. 16

p. 17

p. 23

p. 49

?

Isaac oral history cont. ↓  
p. 63  
p. 49  
p. 63

One of Isaac's first assignments was to test the seed storage theory of his predecessor at Wind River, J. V. Hofmann. Several years earlier, Hofmann had concluded that Douglas fir seed lived in the duff, the decaying organic material of the forest floor, for a number of years before it began sprouting. He cited as evidence the appearance of seedlings nearly a decade after the Yacolt fire swept over an area near Wind River.

Hofmann's theory held great consequence. If it was correct, the forests of the Northwest should regenerate themselves after fire or logging. But Munger and other skeptics pointed out vast cut-over areas in the Douglas fir regions which were remaining treeless year after year. Isaac set to work. He began germination tests on seeds in forest soil, which eventually showed that Hofmann's theory did not hold up. But such meticulously repeated tests took years, and Isaac meanwhile had his own notion of what accounted for the "spontaneous" growth of seedlings in clearcut or burned areas. He set out to measure the flight of tree seeds on the wind.

pp. 63-64  
p. 66  
p. 67

Station Record, p. 19  
Isaac oral history, p. 71

Early in 1926, the inventive researcher hit on the method he had been seeking to measure the distance and patterns of seed flight. He turned kite-flyer. From that World War One job of inspecting airplane wingbeams, Isaac remembered the strength and lightness of Sitka spruce wood. "I got a piece of spruce and made my struts and frame... I got light balloon silk sailcloth and stabilized and covered

it... I attached an oatmeal carton (I saved them from the kitchen) bottom-side-up and tied the cover on with a thin, light thread."

*Isaac oral history, p. 71* { The eerie result, then, was a six-foot box kite with black bat wings, trailing an oatmeal carton below as a bomb bay. ("I haven't seen a kite like it before or since," Isaac would recall with supreme satisfaction.)

*p. 73* { Next, the inventor needed a field of fresh snow. With a ~~pair~~<sup>few</sup> of helpers, Isaac packed up the box-bat kite, skis and snowshoes, and headed across the Cascade ~~Mountains~~<sup>Range</sup> for the wintry Maupin Flats of eastern Oregon. There, the fledgling kite corps found a remote ranch to lodge at

*p. 74* { ("...one of us had to sit up all night to keep the fire going to keep from freezing to death") while Isaac ran several days of seed-flight tests.

*p. 64* { He would play the kite up to a simulated tree height measured on the string -- sometimes 150 feet, sometimes as high as 200 -- pull a trip line which opened the oatmeal carton bomb bay, and out would waft a tiny cloud of Douglas fir seeds. Isaac and helpers then would follow the seed downwind, put measuring frames on the snow-covered ground, and measure the density and pattern of the seed fall.

*p. 72* { "It checked out with amazing accuracy, the density of seed fall in the frame in comparison to the total number of seed that was released. I got a regular survey, a pattern of seed fall on the snow."

*Cowlin*  
←

Isaac oral history cont.  
p. 69

Once compiled, the results of the kite flights showed that a quarter mile was generally the greatest distance the seeds would glide, but if it wafted into a rising air current, a few might sail several times that distance. Isaac had new and fundamental information about Douglas fir regeneration: the "spontaneous" seedlings on deforested areas could have come from breeze-borne seeds rather than the duff.

The kite experiment and Isaac's many subsequent studies into Douglas fir growth add up to a remarkable pattern of research -- an entire new body of knowledge about the production of the Northwest's most valuable timber resource. Even Munger, that strict accountant of budgets and men, must have seen his rarest bargain in the quality of Isaac's work -- as he had hoped, not "research for research's sake, but ... research put into use."

COUNTING THE FORESTS

The Arkansas day of 'can see to cain't see' was in effect much of the time.

--Thornton T. Munger, June, 1931, describing <sup>field</sup> work during the Lewis County phase of the Forest Survey

Early in 1929, Munger went to Washington, D. C., to meet with headquarters personnel about a prodigious new project. It had been prescribed in Section 9 of the McSweeney-McNary Act, that manifesto which was to steer the direction of U. S. Forest Service Research. The precise line read: "...a comprehensive survey of the present and prospective requirements for timber and other forest products in the United States, <sup>of timber supplies (and)</sup> and... of ways and means to balance the timber budget of the United States."

It meant a long-needed inventory of all American forest resources, both privately-held and public -- an accounting of whatever stands of timber we had left after many generations of colossal logging. This nationwide forest survey would begin with the Douglas fir region west of the Cascade Range in Oregon and Washington, the research heartland of the Pacific Northwest Forest Experiment Station.

The Douglas fir country was no idle choice. Although totaling only about 30 million acres of forest land, a fraction of the national total, the region was known to

PNW Station  
monthly  
report  
Jan, 1929, p. 1

U.S. Statutes  
at Large,  
70th Cong.,  
Sess. 1, p. 702

Cowlin m.s.,  
p. 69

Cowlin ms,  
p. 69 ↓

have a major share of the nation's remaining volume of sawable timber. Much of it stood in old-growth stands, and many of those stands were within the boundaries of national forests. As a young forest economist hired for the survey put it, "There were prospects that the historical trends of forest resource depletion in the Lake States, East, and South might be averted here."

Cowlin ms, }  
p. 2

The economist was Robert W. Cowlin, a University of California graduate who had been working for lumber firms in the redwood country. When Cowlin arrived in Portland in early November, 1929, Munger put him on the small work force laying plans for the forest survey.

Munger and the Experiment Station's advisory committee earlier in the year had agreed that one form the survey should take would be "type" maps showing by different colors the age classes and species of timber throughout the region. The idea, if it could be done, would be a graphic triumph -- a mapped profile of the timber stands to accompany the statistical compilations. In any case, both the necessary statistics and the color-coded maps would have to draw not only on reconnaissance of the national forest lands, but on any existing data about privately-held timber stands. Counties had performed timber cruises for taxation purposes, and many lumber companies had detailed information on file about their timber resources. The data was ~~there~~ <sup>awaited use</sup>, if ~~it~~ <sup>only</sup> could be gotten to. Over the next few years, it would be Cowlin's job to get it.

← Hall  
cx

Even as plans for the forest survey were being shaped, the Pacific Northwest lumber industry was suffering economic heaves and staggers. The slackening of the post-war boom of the Twenties had meant a decline in lumber sales and a sag in lumber prices. Now, with the onset of the Depression, lumber production was plummeting. In the Douglas fir region which was the focus of the forest survey, lumber production dropped from about 10 billion board feet in 1929 to 7.5 billion board feet the next year. And since lumber was far and away the leading manufacturing industry in the Pacific Northwest at the time, such a skid was severe for the region's economy.

Such economic woes threatened the cooperation <sup>which</sup> the Experiment Station needed to gain data for the forest survey.

Hard-pressed timberland owners were leery that making public the timber volume data on their holdings would inspire tax officials to boost assessed valuations. Why make the figures known if they might bring on higher taxes? Eventually, the Experiment Station agreed that all private timber cruise data would be kept confidential and ~~that~~ <sup>which</sup> compilations would not be released in any form that would disclose the timber holdings of any single private owner.

Once that rift with the lumbermen had been papered over, the staffing and plans for the forest survey <sup>forged ahead.</sup> ~~were set.~~

Early in January, 1930, Horace J. "Hoss" Andrews, a forester who had directed a forest land and economic survey for the state of Michigan, was brought in as senior forest and regional director economist on the project. The same week, Christopher M. Granger,

Cowlin ms,  
p. 71

Cowlin  
ms, 74  
p. 74

Cowlin ms,  
p. 75

← Brought out

Cowlin ms,  
p. 71

Cowlin  
out →

Cowlin ms,  
p. 71

who had been District Forester of the Pacific Northwest, was appointed national director of the forest survey, and moved his office the several blocks to the Experiment

insert  
p. 27a

Station. Donald N. Matthews from the Umpqua National Forest came over to head the teams which would gather field information on national forest lands. Cowlin was put in charge of assembling data on timberlands outside the National Forests.

Cowlin ms,  
p. 77

Foresters were added to do the measuring and compiling out in the woods. Among them was Jim Girard, a lanky woodsman out of Appalachia who had the knack of glancing at a stand of trees and estimating its timber volume with uncanny accuracy -- "partly through experience and partly through native shrewdness," a fellow woodsman would recall.

Cowlin ms,  
p. 79

The forest survey got well underway in 1930. Munger reported that private timber cruise records "continue to be gathered in at the rate of about one-half million acres a month," while the estimable Girard coached survey teams in his skills of "ocular estimation".

PNW Station  
monthly report,  
July, 1930  
p. 3

But if the Station's major project was prospering, its personnel was not. The effects of the Depression began to wash over the Experiment Station early in 1931. Munger was instructed to hold up the expenditure of a portion of appropriated funds during the next ~~year and a half~~ two fiscal years.

Cowlin ms,  
p. 83

Promotions, hirings, and travel all were restricted. Salaries, never very robust in the Forest Service -- junior foresters



Walter H. Meyer, who had come to the Station as an assistant silviculturist in 1926 and soon went on leave to earn a Ph.D. at Yale, was the resident authority on statistical methods; for the Survey, he would be chiefly responsible for the methods of predicting forest growth.

Cowlin  
letter,  
7-2-75

PNW  
monthly  
report,  
Feb. 1926

with college degrees were being hired for <sup>about</sup> \$2000 a year -- now stood frozen year after year. Then in July, 1932, annual vacations were scrapped and the "Hoover holiday" was instituted -- two days off each month without pay.

For all that, a belt-tightened job was infinitely better than no job. Philip A. Briegleb, a researcher who joined the Station staff just before the rapid slide into the Depression began in <sup>late</sup> 1929, recalled the reassurance of even a diminished paycheck: "In those years, an assignment in the Forest Service was a pretty good looking asset."

And while the Depression years meant lean pay, they also were proving to be an era of expansion and verve for federal forestry. Out of the New Deal's "year of the alphabet" -- 1933 -- flowed funds and personnel made available by the new emergency agencies. With the advent of the CCC (Civilian Conservation Corps), plentiful manpower was channeled into the forests. Munger remembered the labors of the CCC youths: "They did a lot of development work, including building residences and office buildings at several places," plus "a substantial amount" ~~of buildings~~ at five new experimental forests under the Station's administration. ECW (Emergency Civil Works) funds financed the rehiring of temporary workers who had been laid off in the budget crunch, and the hiring of field assistants and scientific aides to help with the forest survey and other Station projects.

Cowlin ms,  
p. 113

Cowlin ms,  
83

interview  
with Briegleb

Cowlin ms,  
p. 92

Cowlin ms,  
p. 111

Munger oral  
history, p. 138

Cowlin ms,  
112

Even before that transfusion, a study of fire loss was carried out by experienced timber cruisers and graduate foresters left short of employment by the Depression.

Late in 1933, more funds and people were made available to the Station from the NIRA (National Industrial Recovery Agency) and CWA (Civil Works Administration); by the new year, these accounted for some 50 more people on the Station work force.

In the midst of the hectic year of growth, the Station moved to new quarters in the Portland federal courthouse. It was the Wind River exodus of 1924 writ much larger -- workers grappling furniture, scientific equipment, and shelves of books into panel ~~wagons~~ <sup>sedans</sup>. As promptly as the move was made, the new quarters were outgrown by the influx of "alphabet agency" staffers. Two large jury rooms of the U. S. Circuit Court of Appeals were borrowed for the overflow -- only to be promptly taken back by an irate judge who discovered a fresh cigarette burn on an oaken desk.

While the Station headquarters crammed in its new personnel and projects, the field work on its biggest research program ~~the~~ the forest survey of the Douglas fir region ~~was~~ was nearing completion. The survey had taken an unexpected turn in late 1930 when Forest Service headquarters in Washington, D. C., decided that the estimate-and-compile method being used by the Station crews should be tested against what was called the ~~linear~~ <sup>line-plot</sup> method. Lewis

← Bright cut

Cowlin ms,  
p. 92

Cowlin ms,  
p. 113  
p. 115

Cowlin ms,  
p. 108,  
p. 110

Cowlin ms,  
p. 115

Cowlin ms,  
84-88

Explanation of  
methods,  
Cowlin ms,  
p. 73

*Cowlin m.s.,  
84-88* ✓

County, Washington, one of the larger units of the Douglas fir region, was chosen as a test area. Across some one million acres, linear ~~strips~~<sup>swathes</sup> of timber were singled out at three-mile intervals. Crews then measured timber volume on quarter-acre plots at regular intervals within the forested ~~timber~~ strips.

*line-plot*

Cowlin, who had charge of the linear survey experiment, calculated that 960 man-days were spent in the woods. "The 8-hour day was unheard of," he recalled, "for in some instances it would take several hours or more to reach the line in the morning and a like amount of time or more to reach the camp, night lodging place, or automobile at the end of the day." He remembered that there were rewarding moments out in the big trees. Francis X. Schumacher, a visiting scientist from the Washington headquarters, profited nicely from the survey crew in a weekend poker game ~~in~~<sup>at</sup> Chehalis, but on Monday, Cowlin and a cohort evened the score with bets on tree diameters before they were measured. "Schu had a tendency to underestimate the large old-growth Douglas fir," Cowlin reported with relief.

*Cowlin m.s.,  
P. 87* }

*Cowlin m.s.,  
87-88* ✓

The Lewis County measurements were completed by the end of June, 1931, and computations were begun to compare the two methods of survey. They were found to be fairly close in results, the ~~linear-strip~~<sup>line-plot</sup> method proving a bit more precise in revealing small stands of hardwood within the big coniferous forests, the compilation method more flexible for

use in varied terrain<sup>5</sup> and expanses. The decision was made to continue the compilation method, not only for the Douglas fir region but also for the Ponderosa pine ~~region~~ survey to be carried out east of the Cascades.

By the end of 1932, the inventory of national forest lands in the Douglas fir country was completed. What remained to be done on the privately-held timber stands and in compilation and evaluation was hastened by the supervisory abilities of "Hoss" Andrews, something of an artist at evading red tape. In 1934, the compilations and measurements of timber stands were translated into color-coded maps. Late in 1935, fieldwork was completed in the Ponderosa pine region. ~~The next year,~~ <sup>Within about another</sup> the final forest survey report for the Douglas fir region was ~~published.~~ <sup>readied.</sup>

Insert p. 31a

~~The forest survey clearly was the Experiment Station's major research achievement in this era, but other milestones can be counted as well. This was the period when experimental forests were <sup>first</sup> established -- the valuable research resource which makes possible the study of various types of forest and their response to different resource management practices. in their natural state, Aerial photography experiments were ~~tried.~~ When the great Tillamook fire destroyed a vast swath~~

Bright cut

of old-growth timber in northwestern Oregon in August, 1933, Leo Isaac and fellow researcher George Meagher followed up with a study of regeneration in burned-over areas. Their findings, which pointed out erosion hazards in the steep Tillamook area, made front-page headlines in the Portland

Cowlin ms, p. 88

Cowlin ms, p. 101

Cowlin ms, p. 117

Cowlin ms, p. 124

Cowlin ms, p. 130

Cowlin ms, p. 151

Cowlin ms p. 82

Cowlin ms, p. 89-90

Cowlin ms, p. 130, p. 148

The forest survey clearly was the Experiment Station's major research achievement in this era, but other milestones can be counted as well:

--This was the period when experimental forests were authorized and established (one in the Douglas fir groves of the Wind River Valley, another in the western yellow pine country near Pringle Falls on the upper Deschutes River) -- the first of these valuable research resources which make possible the study of various types of forest in their natural state and their response to resource management practices.

} PNW Stn  
monthly  
report  
12/04/31

← Pringle  
Cox

--Aerial photography was contracted for by the forest survey staff, chiefly to see whether it could be used on the most inaccessible backcountry of the Siuslaw National Forest in southwestern Oregon. The experiment was found promising, but too costly. The extensive use of aerial photography would await more sophisticated equipment and film.

--When the great Tillamook fire destroyed a vast swath

Cowlin,  
p. 82

Cowlin  
ms,  
p. 89-90

newspapers. The Isaac-Meagher study was perhaps the most broadly-noticed of the many publications which flowed out of Station research in these years.

Points of tension also show up in a scanning of this Depression era. In March, 1934, researcher Axel <sup>J.F.</sup> Brandstrom presented a system called selective logging. Simply put, the Brandstrom formula called for logging out the trees of highest value and leaving the rest to grow into a future timber crop, a sharp break with the practice of clear-cutting entire areas. Brandstrom's notion in the next few years set off a dispute within the Pacific Northwest Forest Experiment Station and on into highest echelons of the Forest Service.

Burt P. Kirkland, a well-known Northwest forester ~~then serving in the Washington office of the Forest Service,~~ ~~Burt P. Kirkland,~~ had readied a report titled "Selective

Timber Management in the Douglas Fir Region." Munger and

Isaac objected to many points in the manuscript, particularly what they saw as wholesale conversion to partial cutting in the old-growth Douglas fir forests.

This, they argued, would lead to timber stands of uneven age, which were not the optimum development of the big and to the nurture of species less commercially valuable than the Douglas-fir. species, Kirkland and Brandstrom held the viewpoint that

selective logging was efficient and economical, particularly with the advent of logging tractors and trucks which made for more flexible operations in the woods.

Here was an early round in the complex battle over clear-cutting and alternatives to it. Munger was especially perturbed -- although he termed it merely "muffled

Cowlin ms,  
p. 120  
pp. 135-136

Cowlin ms,  
p. 188

Cowlin  
cut

Cowlin ms,  
p. 188

Cowlin ms,  
p. 188

disapproval" -- that Regional Forester <sup>C.J.</sup>Buck was determined to make selective cutting the policy on national forest timberlands in the Northwest. Over Munger's protests, the disputed report was published with the backing of Forest Service headquarters and a foreword by Chief Forester Ferdinand A. Silcox which called the Brandstrom-Kirkland proposals "thought provoking, original, and constructive."

One signal achievement of these years would seem to have been long overdue: the Station's first laboratory. A small building was rented in southeast Portland, renovated, and some basic equipment installed. It was at best a modest start; a staff member of the time points out that the miniature laboratory, "if it could be so dignified," had to be shared with federal scientists doing research on forest insects.

This era could have a number of endings, of several different shades. One might be the waning, by early 1938, of New Deal programs and money which had fueled so much of the Station's research. Another might be the completion of the Douglas fir forest survey, that landmark effort in evaluating our timber resources. Or, there is the conclusion which can be fixed exactly down onto the date of July 1, 1938. On that day, Thornton T. Munger became the Station's head of Forest Management Research, and stepped down as Director.

Cowlin ms,  
p. 180

Cowlin ms,  
p. 136

Cowlin ms,  
p. 93

Cowlin ms,  
p. 172

Cowlin ms,  
p. 175



WHEN FORESTRY WENT TO WAR

Cry, 'Havoc!' and let slip the dogs of war.

--William Shakespeare, Julius Caesar

The night of June 21, 1942, a Japanese submarine surfaced off the Oregon coast and plinked at least <sup>nine</sup> ~~ten~~ hasty rounds of gunnery toward Fort Stevens, near the mouth of the Columbia River. It was a mysterious show of bravado, but in its way the loud little episode symbolized the coming of World War Two for the Pacific Northwest. This region was remote from overseas battlefields, but the far conflicts broke the routines of life even so.

"A large part of the staff's time during these two months was spent on national defense and war work," remarked the Experiment Station Director's report covering December, 1941, and January, 1942. The comment could have been repeated in every subsequent report for the next four years.

One of the earliest consequences of war's outbreak was <sup>the</sup> added heft in the work week for Station personnel, which was increased from 40 hours to 48. Another prompt effect <sup>emerged with</sup> ~~was~~

the constant stream of projects to determine how timber resources could be fed most usefully into armaments production.

The Experiment Station, which in the 1930's had been compassed by the economic dilemmas and emergency measures of the Depression, now spent the first half of the 1940's geared into the war effort.

Stewart  
Holbrook,  
The Columbia,  
p. 371;  
Graham  
Shrader,  
The Phantom  
War in the  
Northwest, p. 39

PNW Station  
report, Dec, 1941  
Jan 1942, p. 6

Cowlin ms,  
p. 228

Cowlin ms,  
p. 228

Cowlin ms,  
p. 236

In the Station Director's chair throughout World War II was Stephen N. Wyckoff, a plant pathologist educated at the University of California at Berkeley. Wyckoff had become director of the Northern Rocky Mountain Station at Missoula in 1936. On July 1, 1938, he made the move westward to succeed Munger as head of the Portland research facility.

*Cowlin ms, p. 175*

The change of commands not unexpectedly brought a different style of administration to the Experiment Station.

*Cowlin ms, p. 177*

Munger, the close and careful New Englander, had kept a strict eye on the details of research projects. Researcher Leo Isaac characterized his long-time colleague and boss as "a pretty hard taskmaster." With Wyckoff came new

*Isaac oral history, p. 98*

latitude for the Station's division chiefs, more emphasis on results than day-by-day aspects of research. ~~One staff member summed up the Station's successive eras: "Wyckoff had a philosophical attitude toward many of the chores that troubled Munger."~~

*Cowlin ms, p. 192*

*insert p. 35a*

The new Director also presided over some changes in research emphasis. Even before the onset of war increased the need for livestock production, grazing lands were coming under greater attention from Station researchers. Perhaps a new note of respect for the grasslands can be read into the addition to the Station name; in February, 1938, the agency became the Pacific Northwest Forest and Range Experiment Station. By 1939, it had been decided that cattle management studies on national forest summer ranges would

*Cowlin ms, p. 200, p. 227*

*change in headings, PNW Station monthly reports Jan '38 to Feb. '38.*

The new Director, a tall, easy-going sort remembered for his love of music and books, made it his habit to talk ~~deeply~~ earnestly with staff members during auto trips. His role as passenger was hailed with relief after the behind-the-wheel thrills of Munger and sometime acting director Hoss Andrews; soon after Wyckoff's arrival, it was being joshed around the office that "the Station never has had a Director who could drive an automobile, but Steve is the first one to admit it."

The Station's successive administrative eras were best summed up in the comparison offered by a veteran Station hand: "Wyckoff had a philosophical attitude toward many of the chores that troubled Munger."

Cowlin  
letter,  
7-2-75

Briegleb  
letter, 7-7-75

be the focus of range research. The Starkey Experimental Range in the Umatilla National Forest of northeastern Oregon was established in 1940 as a center for cattle management research. By then, a range survey of the Pacific Northwest had been finished, totaling up data on forage acreage the way the forest survey had inventoried timber. Even as

Cowlin ms, p. 215

the Station was stepping up its range research, the caprice of weather had its influence. For several years before 1941, grazing lands east of the Cascade <sup>mountains</sup> Range had been in

Romanian ex

a dry cycle, and scantiness of ~~the~~ grass was a perplexity.

Although <sup>came wet and bountiful,</sup> ~~and~~ <sup>and</sup> ~~But 1941 began a series of wet years,~~ the languishing ranges greened up, ~~and~~ the Station's Division of Range Research still <sup>extended effects which overgrazing had inflicted on the</sup> ~~had to cope with the new threat of overgrazing.~~ <sup>best grasslands.</sup>

Cowlin ms, p. 227

The Pacific winds <sup>which were needed to bring</sup> ~~that brought~~ in a bounty of moisture

Cowlin ms, p. 235, p. 240

for the summer pastures at the same time wafted a threat to the forests. Fire control research took on added importance when it was learned the Japanese were loosing balloons with incendiary devices, in hopes the Pacific winds would carry them into the woods of the Northwest and kindle forest fires.

Although an estimated 9,300 balloon-bombs were launched during the war and many were found in the American timber country, they never became the weapon of conflagration they

Grechame F. Shader, The Phantom War in the Northwest, p. 55

were intended to be. Nonetheless, the threat had to be taken seriously, and fire detection and suppression were bolstered in the research program.

Cowlin ms, p. 240

The Station had experienced its own moments of cloak and dagger even before the war began. A German forester showed up at the Station in 1940, evinced great interest in the forest survey maps of Oregon and Washington, and requested copies. The Station suspiciously passed along his request to headquarters in Washington, D. C. and shunted him off.

On another occasion, the Station was visited by two Finnish foresters whose names and actions, one staff member recalls, "seemed to arouse suspicion that their background was more German than Finnish." This dubiously-regarded duo left by car for California, reportedly under the eye of the FBI.

Derring-do or dark suspicions of it were the least of the Station's puzzles during the war. What emerges from the records and memories of the war years is the effort it took to retool a science-oriented facility into a clearinghouse of economic and technological questions.

Well before the United States entered World War II in December, 1941, military needs were changing the Station's focus of work. A survey of the supply of Sitka spruce prime enough for use in aircraft production was done. The Pacific Northwest's production of lumber, plywood, and wood pulp was growing with the armament program; since such softwood products were vital to military needs, Station researchers began studying the utilization of lesser grades and species of trees than had been customarily used. If there was any doubt about the seriousness of the new thrust of forestry research, the dispelling word came from on high.

Cowlin ms,  
p. 208-  
209

Cowlin ms,  
p. 209

A memorandum issued by Secretary of Agriculture Henry A. Wallace directed that national defense measures were to be given first priority, postwar planning the next consideration, and the regular work program was to rank third.

PNW  
Station  
record,  
1941  
supplement,  
p. 2

At this time, and on into America's first years at war, the Douglas fir industry caused some apprehension among defense planners. Construction lumber and other critical timber products would have to flow out of this key industry, but bottlenecks were showing up. Shortages of machinery and supplies needed for logging and sawmilling were a threat. Labor problems were another; the American Federation of Labor and the Congress of Industrial Organizations at the time were rivals for union strength in the Douglas fir country. Worried about the Pacific Northwest's prime timber source, the Council of National Defense late in 1940 ordered a survey of the Douglas fir industry's economic situation. The deadline was tight; in March, 1941, a three-month wage agreement would run out, and a wide-spread strike which had hit the industry in 1940 might resume. The role of the Experiment Station in this rush report was to furnish data and office manpower, then handle the publication and distribution. It would be only the first of the Station's research projects over the next several years involving the Douglas fir industry and its part in the war effort.

Just as the "alphabet agencies" of the New Deal had brought new tasks into federal forestry, war-time agencies now

Cowlin ms,  
p. 219

Cowlin ms,  
p. 219 -  
222

required unaccustomed types of projects. The Office of Price Administration assigned the Station a study of the rubber tire supply needed by the logging and milling industries of the Pacific Northwest. Truck logging had developed rapidly in the Thirties, but the outlook for tires was troublesome. Japan held the great rubber-producing regions of Asia, and Germany's submarine warfare was crimping off raw rubber supplies from elsewhere in the world. One of the research sidelights of the war was the Forest Service effort to grow substitutes for natural rubber. The best bet seemed to be the guayule plant, a southwestern shrub which was known to yield latex, and a guayule-growing project was set up in California. In the Pacific Northwest, a similar try was made with koksaghyz, a dandelion-like plant indigenous to Russia. Thornton Munger became the research adviser on two test plantations of koksaghyz near Klamath Falls.

The trouble-shooting jobs assigned to the Station multiplied throughout the war. A special survey reported on the quantity of sawmill waste available for conversion to ethyl alcohol. Late in the war, wood alcohol plants were planned and started at Springfield, Oregon, and Bellingham, Washington, with the Station providing data on sources of wood waste. Breakages in the routines of lumber production inspired other research projects; one evaluated the wood supply needed to box agricultural

Cowlin ms,  
p. 230

Cowlin ms,  
p. 236

interview with  
Hall

Cowlin ms,  
p. 236

Cowlin ms,  
p. 236

Cowlin ms,  
p. 245  
interview  
with Hall

Cowlin,  
p. 245

products, another analyzed the problems of getting enough antifreeze to keep logging and lumber equipment at work, still another reported on the use of Port Orford cedar to make separation walls in ~~automotive~~<sup>submarine</sup> batteries. At other times, the Station was called upon to determine the number of wooden barrels used to pack the Pacific Northwest's fruit crop, to see whether Douglas fir bark could be used in making cork, to estimate the supplies of hemlock bark as a source for tannin.

Such war-induced research projects notwithstanding, the most notable tempo of work by the Station in these years was month-by-month monitoring. This marked a ~~transition~~<sup>drastic</sup>. A research facility which had customarily measured its projects in terms of years now had to pump out monthly evaluations of lumber production. Every month, shipments of Douglas fir pontoon lumber, ship decking, and lesser grades of plank were compiled and reported. Every month, shipments of spruce for aircraft production were totaled. Monthly reports on plywood production were made; so were continual log inventories of the Columbia River, Puget Sound, and Grays Harbor timber regions. By and large, Station personnel now were in the business of calculation, and month after month the reports had to flow in <sup>response</sup> to the war effort's demand for statistical information.

The war, long and hard as it was proving to be, would not be forever. A scant few weeks after Pearl Harbor, the

Cowlin ms,  
p. 236.

Cowlin ms,  
p. 232

Cowlin ms,  
p. 230

Cowlin ms,  
p. 231



Forest Service had at least started on post-war planning.

By the time of the Report of the Chief for 1943 -- the year the Allies began to turn the tide of the war -- the newly-appointed head of the Forest Service, Lyle <sup>F</sup>Watts, said flatly "the most urgent need is public regulation to stop destructive cutting." It was past time, in short, when reckless methods could be justified in the name of war needs.

Report of the  
Chief of the  
Forest Service,  
1943, p. 1

On the regional level, Director Wyckoff in 1944 pointed to the consequences of relentless logging in the Pacific Northwest: the old-growth forest had been heavily depleted, especially in the original prime logging areas of Grays Harbor, Puget Sound, and the lower Columbia River. Loggers were now moving into the big timber of southwestern Oregon. What loomed ahead -- and not so very far ahead at that, no farther than the end of this war the Allies had started to win -- was the need to develop management methods for new generations of forests.

Coulin MS,  
p. 242,  
p. 244

TOWARDS BETTER USE

I had a wonderful team, so all I had to do was sit and twitch the lines a little.

--Dr. J. Alfred Hall, Station Director 1945-1950

Coming out of a war is like the unsettling journey to a home left years ago. Familiar scenes and routines can be glimpsed, but they are never quite what they were. The world since then has been put together a little differently, the violent years have joggled the ways of the past. So it was for America coming out of World War II, science's first great war.

To a degree which would have astonished the soldiers in the trenches of World War I, World War II had become a battle of radar and sonar, synthetics and plastics, of technological contrivances for combat beyond all previous dreams or nightmares -- all of it culminating in the cataclysmic wink of atomic light which seared the cities of Hiroshima and Nagasaki. No longer, then, was the scientist a dreamy figure in the ivory tower. He had performed prodigies of fundamental research during the war, and the tools and techniques gained in war-time funding were still available for use. America came home from the war years of 1941-1945 to find science much more in its life than ever before.

Cowlin ms, {  
p. 248

*Contin ms, p. 223* {

The Pacific Northwest Forest and Range Experiment Station, as we have seen, was edging into post-war planning well before the final defeat of Germany and Japan. But what ensued in Station research policy can mostly be dated from the appointment of a new Director and the return of Station personnel from their monthly monitoring of forest industries on behalf of the war effort. Significantly, the new man in charge was a biological chemist of war-time repute, an almost accidental arrival in the upper echelons of forestry research.

*Interview with Hall* ↓

J. Alfred Hall, an Indianan who earned his doctorate in chemistry at the University of Wisconsin, came into forestry research administration by way of a crownfire in the pine woods. Hired in 1930 by the Forest Products Laboratory as a biological chemist, Hall was dispatched from Madison to study the biochemistry of resin formation in the southern pine forests. He was doing research in the woods near Cogdell, Georgia, when a fire "blew up" and raced through some 15,000 acres of pine timber in a single afternoon.

*Life atlas* {

At the time, a debate was simmering within the Forest Service as to whether the policy of total fire protection within national forests should be continued, or whether some fire should be permitted, to clear out brush and perhaps prevent larger conflagrations. Hall had talked over his observations about the possibility of brush control *in the Southern pines* with ~~the~~ Austin Cary of the Southern Experiment Station, a forestry researcher with a near-legendary reputation in the region.

*Hall out* →

*Wash. office out* →

Cary, in his best Maine gruffness, instructed the newcomer: "I want you to write that up." Hall protested the unseemliness of a newly-arrived chemist telling foresters about fire, but Cary was firm: "Nope. Fresh point of view. Foresters can't see the woods for the trees. Fresh point of view. I want it."

"So I wrote it," Hall recalled, "and that was the end of my career as a bench chemist." His forestry research led in the next few years to the <sup>associate</sup> assistant directorship of the ~~Pacific Southwest~~ <sup>California</sup> Experiment Station, ~~in California Berkeley,~~ and then in 1939 to the job as Director of the Central States Experiment Station in Ohio.

On his way east to that new directorship, the world changed drastically for Al Hall, and indeed for all of us ever since. The Hall family was driving out of the eastern reaches of Glacier National Park in Montana on September 1, 1939, when the car radio blared the news of Hitler's invasion of Poland. Hall remembers turning to his wife and saying abruptly: "We'll be into it within three years."

The American entry into World War II, nearly a year ahead of Hall's bleak guess in the Montana mountains, brought him a remarkable new role. Hall was called to Forest Service headquarters in Washington, D. C., given the title of "Principal Biochemist", and turned loose to troubleshoot on war-related forestry research. He spent considerable time on the California project to grow

Hall out →  
Hall out →

Hall  
cx →

ethyl ← Hall  
cx

as an emergency rubber supply, ~~guayule for synthetic rubber~~, and on the plans for ~~wood~~ ethyl alcohol plants in Bellingham, Washington, and Springfield, Oregon -- "In that work, I got very well acquainted with the Northwest." As the war drew to its close and Hall's roving assignments were over, he was named to the Portland job to succeed Stephen Wyckoff, who had been transferred to the directorship of the <sup>California</sup> Pacific Southwest Experiment Station ~~at Berkeley.~~ ~~in California.~~

Hall  
cx →

Hall came to a Pacific Northwest whose timber outlook had changed mightily since the "cut out and get out" days of reckless and relentless logging. The cheap and

Romanian  
cx →  
Cowlin ms,  
p. 248

Cowlin  
cx

available stumpage, those ~~two hundred year~~ <sup>several centuries old</sup> Douglas firs and ~~cedars~~ <sup>red</sup> cedars so readily felled into high-grade logs, had become a thing of the past for many timber operators. Now, national forests and other public timber lands were becoming the only source for some lumbermen. Conservation, so often neglected or scorned in the past, began to inflict itself as a necessity. There was new interest in improved forest management and more efficient utilization of the timber. World War II had left its own dire marks of hasty and wasteful logging. After the war's first full year, the Forest Service's annual report warned darkly:

Cowlin ms,  
p. 226

Forestry in  
Wartime:  
Report of the  
Chief of the  
Forest Service,  
1942, p. 5

interview  
with Briegleb

"We do not want to find, after the war is over, that we ourselves have unnecessarily impaired or destroyed one of the basic resources of the land we have been fighting to protect." On the regional scene, Phil Briegleb, veteran researcher of the Northwest's woods that he was, recalled: "The forests had taken quite a beating."

In the circumstances, Hall's priorities for the Station were clear enough: work towards better utilization of the forest harvest, intensify the research on second-growth forests.

Cowlin ms, p. 250

Out in the logging areas, more of the tree indeed was being used than in the past: towering stumps of earlier eras were now seen to be an unaffordable squander, and the once-scorned smaller diameters up near the crown of the tree were better utilized as well. Sawmill waste which might be converted into byproducts was ~~looked at~~ <sup>appraised</sup> with new respect. The Experiment Station shifted its research structure to help the timber industry toward even more efficient utilization. Hall reoriented the Forest Products

Cowlin ms, p. 249

Hall out

efficient utilization. During the war, Hall had conceived the Forest Utilization Service as a nationwide set of units to work towards this end, and now in his PNW directorship could attune an FUS unit at first-hand. Put simply, Hall's notion was a revamping into closer relationships with the Forest Products Laboratory, the Forest Service's research center at Madison, Wisconsin. The Forest Utilization Service was to make the research at Madison known to the Pacific Northwest timber industry and encourage its use, and in turn help to steer the Madison laboratory programs to meet the Northwest's current timber problems.

Cowlin ms, p. 250

Hall letter

More reorganization followed. In 1946, the Station's territory was divided into geographic areas with separate research centers. The first two were established at Olympia, Washington, and Corvallis, Oregon. Others were set up in the next few years in Oregon at Bend, La Grande, and Roseberg.

Cowlin ms, p. 256

Cowlin ms, p. 273

Utilization projects began to mount up. There was more salvage logging of cutover lands in the Douglas fir region, and a successful pilot plant which turned mill scraps into usable boards. Douglas fir waste was being used for fibreboard and pulpwood. The Station helped to spread information about hydraulic log barkers which used jets of water to peel logs for pulping, and worked with the lumber industry on less costly methods of kiln drying lumber. In research on plywood production, it was found that cull logs showing the decay called white speck -- an imperfection commonly found in old-growth stands of Douglas fir in the southern Cascades -- could be used to make low-grade plywood.

Using the huge old trees more efficiently was one new necessity for the lumber industry. Managing the generation of trees that would follow the vanishing giants was rapidly becoming the next necessity. The Station, in cooperation with ~~the~~ timber companies which owned large stands of second growth forest, set up ~~a pair of~~ <sup>three</sup> experimental tracts in the Puget Sound area to test methods of stand improvement and harvesting. At the same time, the Station became a center for disseminating the results of second-growth forestry in the region.

Another new area of research came with the floods which swirled through the Columbia River Basin in the spring of 1948. In the watershed management study which began hurriedly in the wake of the high water, the Station contributed manpower to an inter-regional Forest Service

Cowlin ms,  
p. 263

Cowlin ms,  
p. 280

Cowlin ms,  
p. 279

Cowlin ms,  
pp. 267-268

Cowlin ms,  
p. 270-  
272

Hall  
cx

Hall  
cx

team. The team, pulled together to look over the damage to forest and range lands and to evaluate causes of the severe flood season, found reasons both of climate and of man's heavy impact. Heavy snow in the upper Columbia Basin had been followed by a warm ~~wet~~ <sup>late</sup> spring. But the runoff had coursed down much watershed acreage which had been denuded by fire or unregulated grazing. The report was a portent of the Forest Service's heightened interest in watershed management; the next fiscal year, the Station was allotted funds for a flood control survey of the entire Columbia River Basin.

Grassland drew attention, too. Forest ecologist Joseph ~~A.~~ <sup>F.</sup> Pechanec had been added to the staff to head the Division of Range Research, and a program of range reseeding was begun. A particular target was cheatgrass, ~~the~~ a bane of many a grazer -- low in nutritional value, high in fire hazard. The ranges of central Washington, heart of that state's cattle industry, were especially plagued with cheat. A two-year program of planting various perennial grasses amid the cheat was established on a large ranch near Wenatchee. Pechanec <sup>is division</sup> next launched a study of cattle management on the Starkey Experimental Range in eastern Oregon to compare the impact of different intensities of grazing on the grasslands.

These post-war years also were a time for catching up, for fitting together research done in the hectic eras of the Depression and World War II. In 1946, projects

Cowlin ms.  
pp. 271-272

Briegleb  
crx

Cowlin ms.  
p. 251

Cowlin ms.  
p. 259

Romanian  
crx

Cowlin ms.  
p. 259



*Cowlin ms, p. 257* { under the title of Applied Forest Management were begun for the first time. Hall explained the background: "Most of the

*interview with Hall* { forest management research in the Station's territory had been excellent work, but had been confined to plots -- growth and yield and spacing and thinning and so on."

The next concept, put most simply, was this: conclusions reached in the many studies done on small sample plots now would be tried on timber operations of commercial size.

*Cowlin ms, p. 258* { The Experimental Forests at Cascade Head, Pringle Falls, and Wind River could be used for some of the work, but other sites would be needed to add other forest conditions into the research. So, in 1948, the Blue River Experimental Forest was established within the Willamette National Forest of western Oregon. This new experimental forest was keyed to the most venerable of the Northwest's timber resources -- the old-growth Douglas firs which had been the mainstay of lumbering in the region for most of the past century.

*Cowlin ms, p. 274-275* ↓ By that year, there remained about 9 million acres of old-growth timber in the Douglas fir region -- roughly one-third of the total commercial forest land in the Pacific Northwest. Clearly, the management of this remaining prime timber demanded research attention. Across three decades -- in fact, since Thornton Munger's plantings of Douglas fir seedlings at ~~eight~~<sup>six</sup> test sites around the

Cowlin ms,  
p. 275

Northwest in 1912-~~1915~~<sup>1916</sup> -- an extensive body of information about the Douglas fir had been abuilding. Both clear-cutting and partial-cutting had been studied on small experimental plots, as had artificial and natural regeneration, and growth and yield patterns. Much had been learned about protecting the great tree species against fire, insects, and disease. But the accumulated knowledge had yet to be tested in a big, commercial-sized timber management project, and the Blue River Experimental Forest offered the chance. A harvest cut of 10 million board-feet was laid out for sale in early 1949, with the emphasis on determining the optimum size of clear-cuts.

interview with Hall

Cowlin ms,  
p. 275

Director Hall, who had sized up research and administrative talent during his war-time years of troubleshooting, kept adding shrewdly to his Station staff. Phil Briegleb

**Northeastern Experiment**

Briegleb  
or x

came back from the ~~New England~~ Station to succeed Munger as head of the Division of Forest Management Research.

Cowlin ms,  
p. 255

Other names that would become well-known in forestry research showed up on the Station roster -- Edward G. Locke

Cowlin ms,  
p. 262

and James J. Byrne for forest utilization, Ralph <sup>W.</sup> Marquis for a study of resource trends affecting the forest industries,

Robert F. Tarrant from the Soil Conservation Service to begin a forest soils project, Elmer <sup>E.</sup> Matson and Archie <sup>C.</sup> Knauss

Cowlin ms,  
p. 262

on the applied forest management staff, Edward S. Kotok to work on forest management, Roy Silen as a forest geneticist.

While the new faces arrived, this period also marked the passing of the Station's original administration. Thornton <sup>T.</sup> M<sup>✓</sup>unger, the first Director, had stepped aside in 1938 to head up the Station's Division of Forest Management Research. In ~~Autumn~~ <sup>October</sup>, 1946, he retired from the Forest Service after nearly four decades of work in the Pacific Northwest. June H. <sup>✓</sup>Wertz, who had been his administrative assistant when the Portland office was opened, retired at the same time. Throughout the Forest Service, retirements in these post-war years took away the last of the personnel dating from "the Pinchot era", the seedtime of the

national forest system as we know it. Gifford Pinchot himself died in 1946, at age ~~79~~ <sup>81</sup>.

New eras, new faces. Now the array put together at the PNW Station by Hall would prove too talented to last. By the time the U. S. was enmeshed in the Korean War in the early 1950's, promotions were dispersing the Station's administrative echelon. Three of Hall's <sup>top-level</sup> hires -- Briegleb, Marquis, and Pechanec <sup>promptly</sup> -- went on to head Experiment Stations in their own right. Locke would be drawn to the Forest Products Laboratory in Madison, Wisconsin, and eventually head it. Byrne became Chief of Engineering for the entire Forest Service.

What might be called the Al Hall era ended, appropriately, with the departure of Hall himself. In April, <sup>✓</sup>1951, Hall left the Portland office to become Director of the Forest Products Laboratory at Madison, where he had started two decades before as a "bench chemist".

Cowlin ms,  
p. 255

Encyc  
Americana

interview  
with Hall

Cowlin ms,  
p. 300

Tarrant ex

NEW PROVINCES OF RESEARCH AND ADMINISTRATION

Since 'tis Nature's law to change,  
Constancy alone is strange.

--The Earl of Rochester, Works

*interview with Cowlin* ↓  
When young Bob Cowlin came up from California in 1929 to report for his new job with the Pacific Northwest Forest Experiment Station, Director Thornton Munger greeted the newcomer and idly asked where the Cowlins had found lodging. Munger, ever the Yale man, was suitably impressed to learn they were staying with Mrs. Cowlin's uncle, a prominent Portland attorney and graduate of Yale law school. Shortly afterward, Cowlin was called into Munger's office to meet a lumberman who also had earned his degree at New Haven. Munger gallantly made the introduction: "Cowlin is not a Yale graduate, but he has Eli connections."

Cowlin had even more than that to commend him, as his subsequent years at the Station would show. His career would conclude with a dozen years as Director; only Munger himself served longer in the job. As successor to Al Hall in 1951, Cowlin inherited both the thrusts of research begun by Hall and the problem of replacing a talented administration being dispersed by promotion. He also presided over the building of the Station staff and

facilities into today's dimensions. It was a gamut of responsibilities beyond all imagination that day he first showed up for work in the Station's original cramped headquarters.

He had graduated from the University of California in 1922 with majors in forestry and economics, and spent the next several years in the California redwood ~~industry~~ <sup>and pine industries.</sup> But the jobs never quite suited. "I seemed to gravitate or was propelled into the sales end, and not into working in the woods," Cowlin soft-spokenly recalled. "I decided I wanted to practice my profession." What helped to decide him was a job in a company town, with the pay in company scrip and not much in the way of company amenities.

"That galled on me sooner or later...And I didn't want to bring a bride up to a company town with unpainted houses." He returned to the University of California for a master's degree in lumber marketing. Interested in the forthcoming forest survey, Cowlin next took the civil service exam and lined up the new job in Portland.

Cowlin was heavily involved with the survey of the Pacific Northwest's Douglas fir region, and in those years became head of the Station's Division of Forest Economics. He served brief terms as acting director a number of times, then, with Hall's departure to the Forest Products Laboratory in 1951, became the first Director promoted from within the Station staff.

interview  
with Cowlin

Cowlin  
ok

Cowlin ms,  
p. 300

The new Director at first seemed to be presiding over a revolving door rather than a research staff, as promotions scattered the Hall administrative staff to new Forest Service jobs elsewhere. Cowlin looked back on his first

Cowlin ms,  
p. 301

few months to find that the only division of the Station unaffected by personnel changes had been Range Research -- and promptly Joe Pechanec, head of that division, was detailed to Somaliland on a United Nations mission.

Cowlin ms,  
p. 292

Also, there was an old story -- tight funding -- brought on by the nation's latest calamity: the war which broke out in Korea in June, 1950.

Cowlin ms,  
p. 307

Cowlin's term as Director was bound to improve from its harrowing start, and it did. New administrators for the research divisions were found, fiscal fortunes improved in 1952 as the Korean War simmered towards a truce, and new research fields were in the offing. So was the imminent growth of the Experiment Station into a modern agency with facilities dotting the map throughout its region.

US Statutes,  
H2S  
700-701

Those dots of growth were drawn in a revamping of Forest Service research administration after World War Two. The concept born of the McSweeney-McNary Act in 1928 was basic -- 11 geographical regions of the U. S., with a forest and range experiment station for each one. Now the administrative chart was redrawn into some 80 research provinces, with each original experiment station overseeing the

provinces in its region. Each province in turn had a research center or headquarters, plus one or more experimental forests or ranges.

It was a formula for branching administration into the locales where on-site research was being done. Under this new charting the Pacific Northwest Station came to have seven research provinces, drawing on the eight experimental forests and ranges which over the years had been established on National Forest Lands, and on ~~the~~ four cooperative experimental forests on private lands.

Something of a scientific renovation followed the administrative. Except for elementary facilities squeezed into extra space somewhere, the Station had never had a scientific laboratory. Research work mostly had been done in field studies -- the projects based out in the woods. Now laboratory science would take on new heft. In 1960,

Congress provided funds for a research construction program.

Out of that funding the PNW Station built its Forest Sciences Laboratory at Corvallis, Ore., opened and operating

in the summer of 1962. A smaller laboratory had been

established at Olympia, Wash.; next would come a soils and

water laboratory at Wenatchee, Wash., and a silviculture

laboratory in Bend, Ore., for the Ponderosa pine region.

Branch offices of the Station had been opened in the Oregon cities of Bend, La Grande and Roseburg, and in Seattle. (The Portland office itself had been moved in

Cowlin ms,  
p. 406

Cowlin ms,  
p. 407

Cowlin ms,  
p. 437

Cowlin ms,  
p. 406

Cowlin ms,  
pp. 408-409,  
p. 424

Insert  
p. 56a

1954 to 729 N. E. Oregon St., a two-story building near ~~the huge new shopping complex called Lloyd Center.~~ By the end of Cowlin's term as Director, the overhaul of administration and research could be read in the projects of the moment. Of the Station's 39 projects, 20 were underway out in the branch offices or laboratories; the Portland headquarters, for nearly four decades the pivot of research work throughout the region, had but 19.

Well before these structural changes, an entire new field of research was inherited by the Station. It occurred in 1953 when, in a reorganization of the Department of Agriculture, the Forest Service for the first time was given responsibility for forest insect and forest disease research.

To the Portland office, this meant a notable rejigging of agency titles and administrative lines. What had been the Forest Insect Laboratory <sup>of the</sup> ~~and the~~ Bureau of Entomology and Plant Quarantine, now became part of the Station as the Division of Forest Insect Research. What had been the regional Office of the Division ~~Office~~ of Forest Pathology, ~~and the~~ <sup>office within the</sup> Bureau of Plant Industry, Soils, and Agricultural Engineering, now ~~were~~ <sup>was</sup> reoriented as the Station's Division of Forest Disease Research.

The newcomers actually were many years senior to the Experiment Station as research staffs. The Office of

Cowlin ms,  
p. 331

Cowlin ms,  
p. 436

Cowlin ms,  
p. 319

Cowlin ms,  
p. 328

PNW Station  
History  
Supplement,  
1953, p. 4



p. 56a -- insert on p. 56

the modern-day shopping complex called Lloyd Center. In May, 1958, came

the short move to <sup>the Station's</sup> ~~the~~ present location, the Omark Building at 809 NE Sixth Avenue.)

By the

address  
from  
Station  
phone  
sheet

Cowlin  
letter  
July 2, '75

History of the Division of Forest Disease Research, p. 1

Investigation in Forest Pathology was organized in 1907, and an agreement was reached in 1910 to establish a branch office of Forest Pathology at each regional headquarters of the Forest Service. The federal entomologists go back even earlier. Serious research on forest insects

The Evolution of Forest Insect Research and Its Present Status in the Pacific Northwest, by Carolin & Wright - p. 1

of the Pacific Northwest seems to date from Prof. A. D. Hopkins, who in 1902 became the first chief of the Division of Forest Insect Investigations. In 1899, when Hopkins still was professor of "economic entomology" at the University of West Virginia, he made a two-month trip through California, Oregon, Washington, and Idaho, and is reported to have returned home with 4,363 specimens of insects.

It is plain enough why research on forest insects was funded long before other kinds of forest research were given serious consideration. The insects killed trees, and lumbermen were horrified to the depths of their account books. In 1910, for instance, an infestation of mountain pine beetle hit the forests in the vicinity of Baker, Oregon. Lumbermen in the area promptly formed the Forest Protective Association, and readily cooperated in a beetle control project with the Bureau of Entomology and the Forest Service. That tussle was only the first of a succession; there would follow campaigns against the Douglas fir bark beetle, the hemlock looper, the spruce budworm, and many

Garrison ←

other forest pests up through the tussock moth problem of recent years.

The lumberman's detestation of insect epidemics may not have changed over the years, but much else about the Pacific Northwest lumber industry had. By this time, the Douglas fir region which had been the dark-green bonanza of timber since the mid-19th century was in fact supporting two different forest economies -- one still cutting the old-growth timber, the other harvesting the smaller second-growth trees which had replaced the original giant stands. Both kinds of logging posed nagging questions about the long-term timber supply in the area. By the early 1950's the regional figures looked bleak enough: about 300,000 acres were being clear-cut each year in the Pacific Northwest, while about 75,000 acres were being planted annually. A considerable portion of the logged-over area might restock itself naturally, but there were barren scars from the past, too -- old cutovers and burned regions that were not growing back healthily.

At that, the trees on the slopes perhaps offered simpler woes than the bogland of economics. It was in this era that log exports to Japan began to multiply -- and became an economic controversy which still is going on. Then, as the 1950's drew to a close, a slump in the demand for construction lumber and plywood pinched the timber industries of the

Cowlin ms,  
p. 321 ↓

Cowlin ms,  
p. 433

Cowlin ms,  
p. 411 ↓

Cowlin ms, p. 411 ↓ Pacific Northwest. By the end of 1960, seasonal shutdowns were being lengthened, work weeks shortened, and marginal mills and plants shut down.

Cowlin ms, p. 434 ↓ Threaded through the economic ups and downs was the trend towards merger, which during the 1950's affected the lumber industry even more rapidly than it did other manufacturing fields. Cowlin later recalled of that period in the area of forest economics he long had watched: "Of the 20 largest lumber producers, 8 disappeared through mergers, 3 went out of business, and 1 became a cooperative." He pointed out, too, that never was the lumber industry a simple proposition: despite the mergers, "there remained a high degree of competition in the industry nationally."

Cowlin ms, p. 333 ↓ The research in response to these trends added up to several new projects and alignments. In 1954, forest genetics became a full-fledged research project <sup>← Brought in</sup> division. Genetics research had begun well before the Station itself, back in the establishment of the Wind River Arboretum in 1912 and in Thornton Munger's test site plantings in the next few years. Now facilities were obtained at Corvallis through the forestry school of Oregon State College, and research intensified on the production of better tree seed and improved timber species.

Cowlin had been drawn to the Experiment Station in 1929 to work on the forest survey just then getting underway.

That timber inventory had been updated every so often; in the decade after the close of World War II, the Station had reinventoried some 31 million acres. Now, in 195~~7~~<sup>8</sup>,

a new computation -- the timber trends study, as it came to be called -- was begun on the quantity and quality of timber supply in the Douglas fir region of the Pacific Northwest. This time, ownership patterns and policies were the focus -- an analysis of who owned the forest lands, and their management of the resource.

The Station's Forest Utilization Service meanwhile was working on technology. The FUS staff played a major part in the installation of the first big Wyssen Skyline Crane in this country. The Wyssen system, set up in the Chelan National Forest in Washington, was an experiment in taking logs out by crane and cable to save the watershed soil and to cut the costs of road building. In this same period, also with the Station's encouragement and participation, taking logs out by helicopter was first tried.

By the first years of the 1960's, then, the PNW Experiment Station had taken on a modern gleam in facilities, organization, and research orientation. Change had been the hallmark of the past dozen years, and the Station had gone historically far from its origins in a small set of offices. Two small facts from this era may sum up what was happening:

Cowlin ms,  
p. 347

Cowlin ms,  
p. 390

Cowlin ms,  
p. 341,  
p. 346

Cowlin ms,  
p. 435

--In more than three decades with the Experiment Station, Leo Isaac had become a nationally-known expert on Douglas fir reforestation. Isaac was the old type of woods-roaming researcher who thrived by his wits, as in his kite flights to study the drift of tree seeds. His personality and feisty affection for the Douglas fir species were felt almost as strongly as his scientific instincts; it had been Isaac the Douglas fir champion who asked Ponderosa pine researcher Ernest Kolbe how Kolbe went about finding the logs of his lesser species "when they got lost in the tall grass." Now, on a day in 1956, Leo Isaac retired.

Isaac oral history, p. 70

Isaac oral history, p. 128

--On another day of that same year, the Portland office became the first of the federal experiment stations to <sup>adopt</sup> ~~use~~ the computer.

Cowlin ms, p. 355

THE DAWNING OF THE AGE OF ECOLOGY

I thought that job on the forest survey ... was the best possible job in the world. It was exploring an unknown resource, in beautiful places, with some wonderful timber -- and getting paid for it.

--Philip A. Briegleb, recalling his  
start at the PNW Experiment Station

Through at least one lens of history, you can look at the 15 years or so after World War II and say that the PNW Experiment Station was catching up with the times, in terms of facilities and administration and thrusts of research. During the next decade or so, the times did a mighty squirm and began crowding hard at the Station once again.

This was the era when the words ecology and environment passed from their customary usage in the bio-sciences into the national vocabulary. It was the time when a sizable body of Americans turned to something like the ethic of the late conservationist Aldo Leopold, himself once an eager young forester in the U. S. Forest Service: "Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question whether a still higher 'standard of living' is worth its cost in things natural, wild,

Aldo Leopold,  
foreword to  
A Sand County  
Almanac,  
p. xvii

and free. For us of the minority, the opportunity to see geese is more important than television, and the chance to find a pasque-flower is a right as inalienable as free speech."

Our great family quarrel about environmental quality versus economic and industrial considerations began in earnest, and some notions which before had suffered little criticism now were in the midst of argument.

For the PNW Station, perhaps no words uttered during the 1960's held more consequence than this single sentence from a book published in 1962: "The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials." Rachel Carson's best-seller Silent Spring became a power unto itself, and our use of pesticides has been affected by it ever since. The PNW Station's Division of Forest Insects Research had behind it some 60 years of effort against tree-destroying pests, and at least 20 years of effective chemical insecticides such as DDT. Some Station research already had been done on biological control of insects, but now the dire accounting of the environmental consequences <sup>from</sup> of existing chemical insecticides and herbicides would have to mean a major change in research emphasis.

The surge of environmental concern also brought up such topics as erosion and silting, both of which had been

Cowlin ms,  
p. 382

1902-1962

WWII - 1962



points of research by the Station for a number of years. In this and other areas of debate, the benefit to public understanding surely was that the complexity of the ecosystem became better known. The slope that lost the silt that clogged the stream that killed the salmon's spawning waters -- now it was more widely realized that it had been the chainsaw that felled the timber stand that denuded the slope. And beyond the chainsaw <sup>learned</sup> was the demand for lumber in our economy and style of life. Federal forestry in the Pacific Northwest long since had undergone its own argument about the most controversial logging method, clearcutting. Opinion had divided sharply even within the Experiment Station staff in the late 1930's <sup>when the point at issue was largely economic.</sup> targeted as an environmental issue. Now, with clearcutting and such matters as timber supply again coming into question, public concern would be looking keenly over the shoulder of research.

Along with the environmental concern came vaster use of the outdoors for recreation. The backpacker, the family at the campground -- both multiplied with the availability of leisure and appreciation of the wild heritage remaining to America. The chronic dilemma of the national forests -- how to provide multiple use of landscape coveted both for natural splendor and for economic resources -- became even more severe. The PNW Station's 1963 annual report soberly mulled the national trend of the past half-century:

"Recreational visits to our National Forests weren't

Brigleb  
cx →

PNW Station  
annual report,  
1963, foreword

1963  
PNW Station  
annual report,  
foreword

accurately counted in 1913, but probably they didn't much exceed 100,000; the count for 1963 will probably approximate 12,000,000 -- an indicated increase of over a hundredfold."

Cowlin ms,  
p. 449

Into the rising force of such trends stepped a new Director for the Station. When Bob Cowlin retired in March, 1963, his successor was another veteran hand in Pacific Northwest forestry -- Philip A. Briegleb.

interview  
with Briegleb

It is hard to think of Phil Briegleb in any possible occupation but forester. Tall, raw-boned, a look of the outdoors in his manner, he would talk in a measured drawl about the profession as a way of life: "Forestry is partly a science, but the application of it is an art." Then, more measured yet: "Some of the artistry has been a little slow in coming along."

"

Briegleb, like Cowlin, had hired on at the PNW Station in 1929 for the Douglas fir forest survey. He came west, fresh out of Syracuse University and his hometown in Missouri, in a brand-new Model A. A few days after he arrived, Thornton Munger sent him on his way north to a timber survey party on the Middle Fork of the Snoqualmie River, in the Cascade Mountains east of Seattle. "I drove the Ford up to the end of the road and parked it there, and shouldered my packsack, with my belongings and bedroll -- and a brand-new pair of caulk boots -- and hiked up to

the camp, which was 12 miles up the trail." Briegleb spent about six weeks on the timber cruise there, then was sent into the Olympic Mountains for a survey project near the headwaters of the Wynoochee River.

That prompt season in the Northwest woods began what Briegleb would remember as a deeply rewarding period of work. The forest survey, he said, "was a thrilling job. We had a feeling that the information we were collecting was going to result in the better protection and management of a very valuable resource." The enthusiasm even overwhelmed matters of the pocketbook. "When I came in from that first summer in the field ... some of the fellows who had been in the Forest Service longer asked me if I was going to turn in an expense account. This was the first time I had heard there was such a thing as an expense account in the Forest Service."

Briegleb worked on the forest survey until 1935, and then began training as a mensurationist, a specialist in <sup>measurements.</sup> ~~forest growth evaluation.~~ From 1936 on, he split his time between the forest survey under Cowlin and mensuration studies under Munger. When World War II came, Briegleb was chosen for a team which was to survey the timber resources of Chile. "I had the experience of sketch-mapping the forests of Chile from the gunner's blister in the back end of a Catalina flying boat." In the autumn of 1944, another forest survey project beckoned, this one in the

Briegleb  
cut →

northeastern states of the U. S. He came back to Portland in 1946 to succeed Munger as head of the Station's division of Forest Management, then went on to become an Experiment Station Director, first at the Central States Station in Ohio and next at the Southern Station in Louisiana. His next, and final, return to Portland came with his appointment to succeed Cowlin in early 1963.

Briegleb had seen, during his quarter-century of federal forestry research, a changing attitude in the lumber industry, "Gradually some of the skepticism developed into tolerance," as he put it. Now, with the lumbermen more amenable, segments of the public were skittish about the Forest Service. The first annual report of the federal Council <sup>on</sup> Environmental Quality bespoke such concern: "Good forest management is no longer synonymous with timber production." Yet, despite the push and pull of stronger environmental and recreational demands, timber production would have to continue. Briegleb charted his policy for the PNW Station: "Mostly, more intensive forest management practices were in need—such as genetics research, fertilization, pre-commercial thinning, more intensive protection of watersheds."

In terms of some specific research projects, a study of the residual effects of pesticides was begun in the fall of 1964, and the emphasis began to shift toward biological and silvicultural measures to control insects. The

Cowlin ms,  
p. 255

Environmental  
Quality, The  
First Annual  
Report of the  
Council on  
Environmental  
Quality, 1970,  
p. 164

PNW Station  
annual report,  
1969, p. 27

computer came more and more into research. Through one dramatic piece of computer programming, different perspectives of the landscape could be drawn electronically to show the visual impact of proposed timber cuts.

PNW Station  
annual report,  
1965, p. 27  
1969, p. 33

Thinning experiments showed that the lodgepole pine, one of the region's frailest lumber producers, could be made to grow in much more productive dimensions. An alternative to clearcutting was researched at the Cascade Head and Hemlock Experimental Forests; it was found that the system called "shelterwood", which left enough trees to protect the site from environmental ravages, could reforest the of Douglas fir, western hemlock, Sitka spruce, and red alder. carefully-logged areas.

Insert  
p. 68a

PNW Station  
annual report,  
1966, p. 7

Meanwhile, the 1960's also saw the growth of research

facilities and projects in the vast northern frontier of the

Station's territory -- Alaska. The Institute of Northern Forestry, with headquarters at Juneau, became part of the PNW Station in 1967.

Brigleb  
ork

PNW Station  
annual report,  
1967, p. 1

in the next few years, a forestry sciences laboratory was added

PNW Station  
annual report,  
1971, map, p. 12

at Juneau, and ~~three~~ <sup>two</sup> experimental forests were set aside already had been in coastal Alaska; another was designated in the interior, and the new Forestry Sciences Laboratory was

Some of the basic research in Alaska read like a new established at Fairbanks.

PNW Station  
annual report  
1967, p. 8

edition of projects earlier carried out in Oregon and

Washington. A forest survey was done to inventory the

timber stands of this final wilderness. The figures were big ones: 28.2 million acres of commercial timber acreage,

more than in any other state; a total volume of sawable

timber estimated at 215.5 billion board feet, more than

three-fourths of it in the Sitka spruce and western hemlock

It is forever hard to know, at close range, which particular research and researchers are yielding the work that will be most highly prized a generation or so from now. A Leo Isaac of years past already has been granted his recognition, but adjudging those still at work is the historian's nightmare of overlooking the truly significant. Nonetheless, to give recent research its due with the past, some try should be made to mention notable projects in the Station's modern era --in forest economics, for instance, R Donald R. Flora's innovative work on allowable timber cuts; in silviculture, Roy R. Silen's system of Progressive Tree Improvement to upgrade the growth capacity of Douglas fir forests; Robert F. Tarrant's discovery of the role of alder in soil enrichment; and Jerry R. Franklin's forest regeneration studies keyed to the shelterwood system.

Brigleb  
letter,  
7-7-75

stands of the wet coastal region.

Along with traditional research areas, such as forest survey silviculture, and forest insects, the Alaskan ecology posed some specific new problems. Erosion was a particular concern. It was found, for instance,

that firelines cut to control forest blazes in areas of permafrost left cancerlike ruts, and a study was begun.

Another focused on fish habitats which, vital as they were to the fishing industry and recreation, had to be protected from the consequences of logging and construction near the streambeds.

Just how far and where the levers of environmental concern and recreational demand will move the Forest Service and its research aims, it is too early to say. As late as 1970, an eyeblink ago as far as history is concerned,

Chief of the Forest Service Edward P. Cliff said ruefully that "our programs are out of balance to meet public needs for the environmental 1970's and we are receiving mounting criticism from all sides. Our direction must be and is being changed." Phil Briegleb, himself a man of deep feeling for the loveliness of forested slopes, found some hard cross-pressures in his 8 years as Director of the PNW Station, such as "the preoccupation with an unwanted war (in Vietnam)" which perpetually tightened budgets.

Quoted in  
Daniel R.  
Barney, The  
Last Stand,  
p. 133

This era of ecological outcry crested with the celebration of Earth Day on April 1, 1970. By then, the PNW Station, no less than the rest of America, could wonder what <sup>the</sup> environmental priorities would have to be in the coming years -- and how one <sup>knew</sup> ~~knew~~ when the sense of balance was just right.



FOREST AND RANGE, TODAY AND TOMORROW

Fragrant little chips of history spewed from the saw cut, and accumulated on the snow before each kneeling sawyer. We sensed that these two piles of sawdust were something more than wood: that they were the integrated transect of a century; that our saw was biting its way, stroke by stroke, decade by decade, into the chronology of a lifetime, written in concentric annual rings of good oak.

--Aldo Leopold, A Sand County Almanac

Chips of history, and the give-and-take strokes of those who make them; they accumulate into a record we can read as the recent past of Pacific Northwest's timberland and grassland, and the federal research centered on them. But the accumulation goes on even as we size up what is already there; already the PNW Station is <sup>more than</sup> halfway through the decade that opened with the environmental push of 1970.

A new Director presided over most of <sup>the first</sup> ~~this~~ half-decade.

Robert E. Buckman, a silviculturist with a research background earned in the conifer forests of the Northern Rockies and the region of the upper Great Lakes, came into the Portland job when Philip Briegleb retired on May 31, 1971. Buckman had been serving as assistant to the Deputy

Aldo Leopold,  
A Sand County  
Almanac,  
pp. 9-10

Station news  
release,  
6-2-75

Chief for Research in the national office at Washington, D. C. He was prompt to proclaim the new complexities of federal forestry: "The problems of forestry today concern not so much the lack of knowledge about single uses and single commodities; they concern not fully understanding the interrelationships of multiple uses -- water and recreation or timber, wildlife, and livestock."

PNW Station annual report, 1971, p. 1

A reorganization of research began under Buckman. In 1971, four projects at Fairbanks, Alaska, were melded into a single interdisciplinary team -- entomology, botany, silviculture, and forest management all represented on the study of the forest ecology of the Alaskan interior. Since then, many of the Station's scientific projects have been retooled into research work units which combine several areas of expertise. ~~(for the current roster of research, see page 00).~~

The experimental areas the Station had drawn on for decades also began to show new approaches. In late 1974, the handsome set of headlands and estuaries midway along the Oregon coast which had been the Cascade Head Experimental Forest became the country's first scenic-research area.

PNW Station annual report, 1974

Even before that, in 1972, an inventory of the federal government's research natural areas in Oregon and Washington -- there are <sup>now</sup> about 60 of them, under various agencies; the ~~Station administrators~~ <sup>the research use of</sup> ~~29~~ -- had been published.

← Romanian OK

Alaska was given <sup>stronger</sup> larger research emphasis. The global scramble for natural resources has coincided with

← Tarrant OK

PNW Station annual report, 1973, p. 11

the apportionment of 220 million acres of public domain lands in the Alaskan vastness among federal agencies, the Alaska natives, and the state government. One of the earliest concerns has been the effects of logging white spruce from interior Alaska's fragile ecosystem; studies of harvest methods and regeneration were started on the Bonanza Creek Experimental Forest. Other prime Alaskan projects of the past few years have included research on the effects of log dumping and rafting in southeast Alaska, and on techniques to increase spawning areas for salmon.

Even as new research ventures were planned, an old subject pushed into prominence again -- the forest insect, this time the tussock moth. By 1973, the Station was calling the tussock moth proliferation "the worst epidemic of this destructive forest defoliator ever recorded," calculating that the pest had spread through some 800,000 acres of forest in eastern Oregon and Washington, Idaho, and Montana. Studies on the tussock moth dated back to 1927, long before federal entomology research was transferred to the Forest Service. But now the environmental risk of chemical insecticides had been added into the research equation, and a number of Station researchers worked on non-chemical remedies, such as the virus that often causes the natural collapse of tussock moth outbreaks. And during 1974, the entomologists managed to identify the

*PHW Station  
annual report,  
1973, p. 5*

PNW Station  
annual report,  
1974

sex attractant, or pheromone, which lures the tussock moth; putting out a synthetic attractant in traps may provide an early-warning system to signal the growing infestation of a forested area.

By the end of 1975 -- a half-century since the wonder-worker of the gooseberry bush dropped by to see what the Station's name meant -- the PNW Forest and Range Experiment Station had a complex family tree of current and past research. Sorting out the lineages might produce some of these conclusions:

--An agency is pushed and pulled by the times. It has to be, or history leaves it drowsing into oblivion. Decade by decade, though never in quite so tidy a time span, the PNW Station has felt the Depression, three wars, the growth of environmental concerns, the updraft of inflation, and the burgeoning of science in the nation's everyday life.

Brought  
out

--The bloodline of an agency is its people. The decades of research by a Leo Isaac yield not only a body of skills and data, but a model of human capacities. In the eras of the six Directors who have headed the Station can be read, not surprisingly, some guiding notions of each man: Munger's brisk administration, and just as brisk an emphasis on the great Douglas fir species; Wyckoff's delegation of authority amid the many demands of war; Hall the biochemist focusing on methods of better using the forest's wood; Cowlin the economist presiding over the growth of

p. 74a -- insert on p. 74

Buckman's four-year directorship concluded in June, 1975, when he was named to the Washington post of Associate Deputy Chief for Forest Service research. His successor, Portland-born and the first native Northwesterner to head the PNW Station, is Robert F. Tarrant. Tarrant came to the Station from the Soil Conservation Service in the fall of 1946, and in his career as a research soil scientist headed up the project on forest soils and regeneration, and then -- in the post-Silent Spring days -- the project which studied the impact of chemicals on the environment. He became Assistant Director of the PNW Station in 1971, and Director on July 1, 1975.

*Conklin  
ms,  
p. 258*

*lio  
sheet,  
April 8,  
75*

scientific facilities and administrative units; Briegleb's attention to more scrupulous forest management; and Buckman's retooling of research projects into interdisciplinary teams.

--Research seeks an orbit around a prime resource.

The five decades of the PNW Experiment Station have produced several thousand publications, on a spectrum of research from insect control to watershed protection, from grazing management to forest inventories. New trends already have been shaped by the environmental and recreational demands of recent years. But the commanding species, the great renewable resource which has ruled the Station's provinces of research, has been the Douglas fir. This tree, colossal both in its value and versatility as lumber and in its grandeur as a forest mainstay, clearly has summoned forth the most significant body of research findings to date in this region.

--And finally, the forests and the grasslands thrive or wane according to the heartbeat of our society. The U. S. Forest Service, and its agencies such as the PNW Forest and Range Experiment Station, have been entrusted with this country's most precious natural heritage -- the renewable growth which our lives draw on each day. It is also a most baffling responsibility, mandated for wise management but at the same time targeted for a growing number of uses which too often fit together uneasily, if

at all. Yet somehow the trees must continue to green and grace that hopeful tilt of the mountain slopes, the grass must whisk its eternal wind dance all across the benchlands and valleys. Not for nothing are such scenes called horizons.

SOURCES AND ACKNOWLEDGMENTS

The source notes listed below are meant to document quotations and, in special instances, some specific points of history. A copy of the manuscript fully annotated with sources is on file with the PNW Forest and Range Experiment Station, and another is in possession of the author.

This history has drawn heavily on the 459-page manuscript compiled by former Station Director Robert W. Cowlin -- "Federal Forest Research in the Pacific Northwest." The Station files yielded a useful year-by-year summary of projects and personnel. The first of these typescript volumes is titled "A Record Concerning the Wind River Forest Experiment Station, July 1, 1913-June 30, 1924, and the Pacific Northwest Forest and Range Experiment Station, July 1, 1924-December 30, 1938," with supplements for 1939-1943. The second is "The Pacific Northwest Forest and Range Experiment Station History Supplements 1944 through 1953." The annual reports

published by the Station, beginning in 1938<sup>5</sup>, provide a handy summary of research activities and publications.

Cowlin ms  
p. 209 {

For detailed documentation, the archival material on deposit at the Federal Archives and Records Center in Seattle is highly valuable, especially the monthly reports written by the Station Directors.

The files of the Forestry Sciences Laboratory at Corvallis contain a pair of mimeographed histories which are unhappily brief: "The Evolution of Forest Insect Research and Its Present Status in the Pacific Northwest," a 1956 conference paper by V.M. Carolin and K.H. Wright, and "History of the Division of Forest Disease Research, Pacific Northwest Region," dated 1958 and listing no author.



As for personal recollections, it is extraordinary good luck that four of the Station's first five Directors have been available for interview. (Stephen N. Wyckoff, Director from 1938-1945, died in 195<sup>9</sup>.) Thornton T. Munger was interviewed in 1967 by Amelia R. Fry of the Forest History Society, with the results published under the title Thornton T. Munger: Forest Research in the Northwest (Berkeley, 1967). The three former Directors interviewed by the author in the spring of 1975 -- Philip A. Briegleb, Robert W. Cowlin and J. Alfred Hall -- were exceedingly helpful.

Several researchers at the Forestry Sciences Laboratory in Corvallis also took the time to talk about their projects: Robert K. Campbell, Robert H. Ruth, Ronald E. Stewart, and Douglas N. Swanston. Charles Sartwell was especially helpful as a guide into material about the history of forest insect research. Much information about research in an earlier era was drawn from Amelia R. Fry's interview with the late Leo A. Isaac, published as Leo A. Isaac, Douglas Fir Research in the Pacific Northwest, 1920-1956 (Berkeley, 1967).

For background on the history of Americans and their forests, two books are indispensable: Thomas R. Cox, Mills and Markets: A History of the Pacific Coast Lumber Industry to 1900 (Seattle, 1974), and Richard G. Lillard, The Great Forest (New York, <sup>1947</sup>~~1975~~). And the author was fortunate indeed to be able to read in manuscript Harold K. Steen's history of the U.S. Forest Service.

A number of persons lent the advantage of their comments on the first draft of this Station history: Philip A. Briegleb, Robert E. Buckman, ~~and Alfred Hall~~ George Garrison, J. Alfred Hall, Frank Harmon, J. Louise Parker,

Charles J. Petersen, Robert M. Romancier, Harold K. Steen, and Robert F. Tarrant. And finally, after sharing his <sup>OWN</sup> manuscript and sources and sitting for an extensive interview, Bob Cowlin still had the good grace to ~~make~~ improve this version with further information and advice.

A BEGINNING

Page

00 One caller, name unknown: PNW Forest Experiment Station monthly report, Jan., 1925, p. 2.

THE LAND, THE TREES

00 a species which grows: Reuben Gold Thwaites, ed., Original Journals of the Lewis and Clark Expedition (New York, 1904-1905), vol. 4, p. 41

00 "The wood may be found": Murray Morgan, The Last Wilderness, (New York, 1955), p. 58.

00 first sawmill in the Pacific Northwest: based on Thomas R. Cox, Mills and Markets (Seattle, 1974), p. 9.

00 a Seattle newspaper remarked: cited in Cox, Mills and Markets, p. 229.

00 "Boss loggers and lumbermen": Stewart H. Holbrook, Holy Old Mackinaw (New York, 1939), p. 248.

THE SKEIN OF LAW AND ADMINISTRATION

00 America had the virgin West: Wallace Stegner, Beyond the Hundredth Meridian (Cambridge, 1953), p. 117.

00 granted the Wind River Experiment Station: Annual Report of Wind River Experiment Station for 1913, p. 1.

00 "it was then a sad affair": Leo A. Isaac: Douglas Fir Research in the Pacific Northwest, 1920-1956 (Forest History Society interview by Amelia R. Fry, Berkeley, 1967), p. 49, p. 53.

00 allotted \$26,060: Pacific Northwest Forest Experiment Station  
Record, 1924-1938, p. 13.

00 blueprinted the regional Experiment Stations: U.S. Statutes at  
Large, 70th Cong., Sess. 1, 1928, pp. 701-702.

GETTING UNDERWAY IN PORTLAND

00 We had...a bicycle tire valve: Richard E. McArdle letter to Robert  
W. Cowlin, Oct. 18, 1973.

00 "From the start": Thornton T. Munger: Forest Research in the  
Northwest (Forest History Society interview by Amelia R. Fry,  
Berkeley, 1967), p. 45.

00 the "awful"blow": Munger interview, p. 58.

00 "People who have gone through": Munger interview, p. 49.

00 "...As a surprise to me": Munger interview, p. 99.

00 "October has been divided": PNW Forest Experiment Station monthly  
report, Oct., 1925, pp. 1-3.

000 "remodeled with hinges": McArdle letter to Cowlin, Oct. 18, 1973.

00 "I got a piece of spruce": Isaac interview, p. 71. Subsequent quotes  
about the kite experiment are from the same source, pp. 64-74.

COUNTING THE FORESTS

00 "...a comprehensive survey": U.S. ~~STATUTE~~ Statutes at Large, 70th  
Cong., Sess. 1, 1928, p. 702.

00 records "continue to be gathered": PNW Forest Experiment Station  
monthly report, July, 1930, p. 3.

00 "In those years": interview with Philip A. Briegleb by Ivan Doig,  
Portland, April 30, 1975.

00 "They did a lot": Munger interview, p. 138. Details of projects by the CCC and other New Deal work forces can be found in the year-by-year summary in the Pacific Northwest Forest Experiment Station Record, 1924-1938.

WHEN FORESTRY WENT TO WAR

00 "A large part": PNW Forest and Range Experiment Station monthly report, Dec. 1941-Jan. 1942, p. 6.

00 "a pretty hard taskmaster": Isaac interview, p. 98.

00 the agency became the PNW Forest and Range Experiment Station: The Station Record doesn't note the name change, but the title on the Station's monthly reports was changed in February, 1938.

00 "seemed to arouse suspicion": Cowlin manuscript, p. 209.

00 A memorandum issued: PNW Forest and Range Experiment Station ~~Record~~ <sup>Record,</sup> ~~History~~ <sup>History</sup> Supplement for 1941, p. 2.

00 guayule-growing project: interview with J. Alfred Hall by Ivan Doig, Portland, May 1, 1975.

00 "the most urgent need": Report of the Chief of the Forest Service, 1943, p. 1.

TOWARDS BETTER USE

00 I had a wonderful team: Hall interview. Subsequent quotes and information about Hall's early career are from the same source.

00 "We do not want to find": Report of the Chief of the Forest Service, 1942, p. 5.

- 00 "The forests had taken": Briegleb interview.
- 00 "Most of the forest management research": Hall interview.

NEW PROVINCES OF RESEARCH AND ADMINISTRATION

- 00 "Cowlin is not a Yale graduate": interview with Robert W. Cowlin  
Portland,  
by Ivan Doig, April 29, 1975. Subsequent quotes and information  
about Cowlin's early career are from the same source.
- 00 The Office of Investigations in Forest Pathology: History of the  
Division of Forest Disease Research, Pacific Northwest Region,  
p. 1
- 00 Serious research on forest insects: Information in this paragraph  
and the subsequent one is from V.M. Carolin and K.W. Wright,  
The Evolution of Forest Insect Research and Its Present Status  
in the Pacific Northwest.
- 00 Cowlin later recalled: Cowlin manuscript, p. 434.
- 00 "when they got lost": Isaac interview, p. 70.

THE DAWNING OF THE AGE OF ECOLOGY

- 00 I thought that job: Briegleb interview
- 00 "Like winds and sunsets": Aldo Leopold, A Sand County Almanac  
(New York, 1966), p. xvii.
- 00 "The most alarming": Rachel Carson, Silent Spring (Boston, 1962),  
p. ~~66~~<sup>6</sup>.
- 00 "Recreational visits": PNW Forest and Range Experiment Station  
annual report, 1963, foreword.
- 00 "Forestry is part~~y~~ a science": Briegleb interview. Subsequent

quotes and information about Briegleb's early career are from the same source.

00 "Good forest management": Environmental Quality, The First Annual Report of the Council on Environmental Quality, 1970, p. 164.

00 "our ~~agency~~ programs are out of balance": Quoted in Daniel R. Barney, The Last Stand (New York, 1974), p. 133.

00 "the preoccupation with": Briegleb interview.

FOREST AND RANGE, TODAY AND TOMORROW.

00 Fragrant little chips: Leopold, A Sand County Almanac, pp. 9-10.

00 "The problems of forestry": PNW Forest and Range Experiment Station annual report, 1971, p. 1.

00 "The worst epidemic": PNW Forest and Range Experiment Station annual report, 1973, p. 5.

Changes to make in references to Roy Silen:

p. 50, make it "Roy Silen as a silviculturist in the field of regeneration"

p. 68a, make it "to enhance the growth capacity of Douglas fir forests,  
now used by ~~most~~ many forest land owners in the Northwest"

p. 52 - Cowlin had considerably more



# Early Forestry Research



a history of the Pacific Northwest Forest & Range Experiment Station

1925-1975