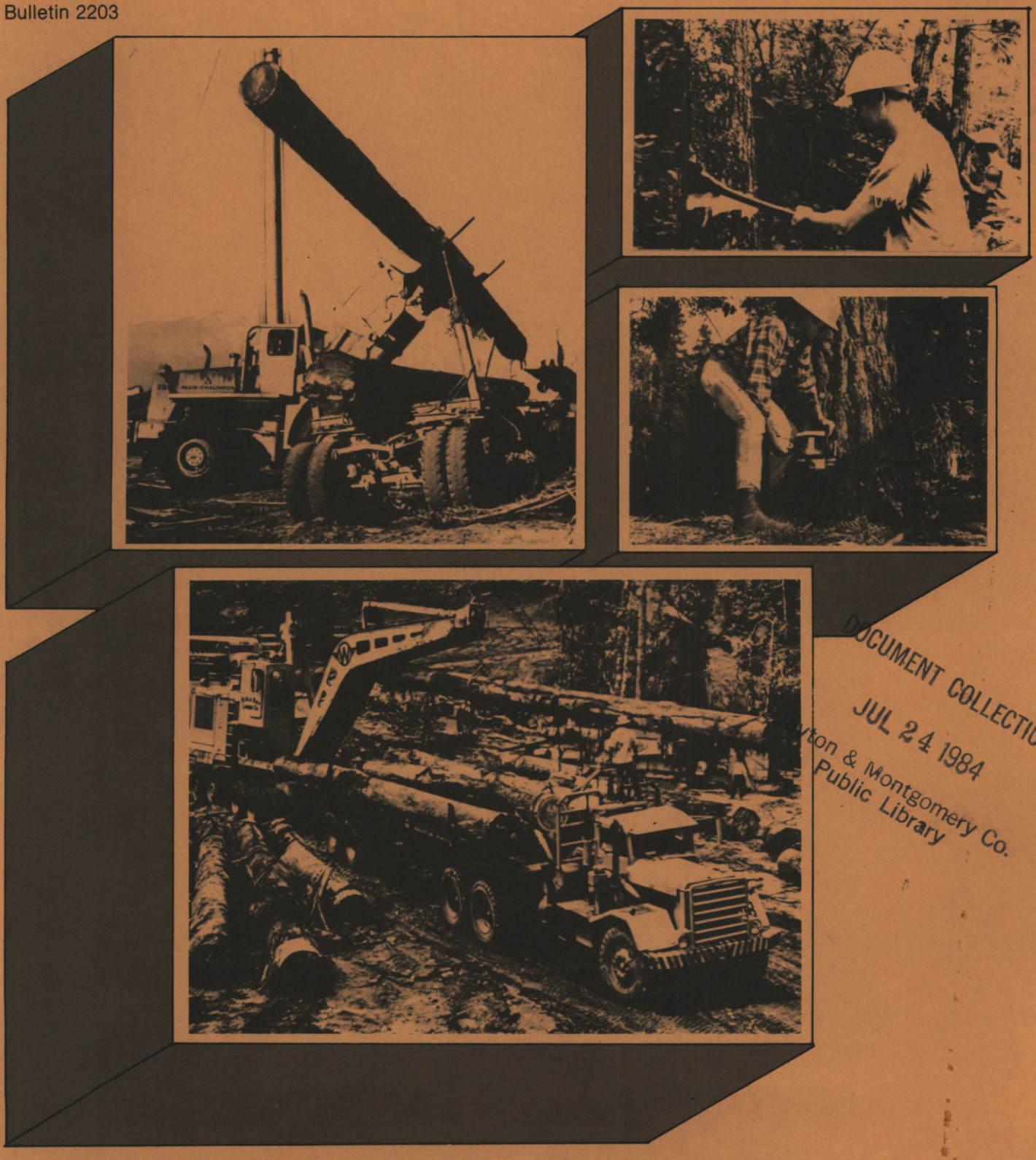
Injuries in the Logging Industry

U.S. Department of Labor
Bureau of Labor Statistics
June 1984

Bulletin 2203



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U.S. Department of Labor
Raymond J. Donovan, Secretary

Bureau of Labor Statistics
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Preface

This bulletin summarizes the results of a survey of workers who were injured while performing logging activities. The survey, conducted during the period April through June 1982, will assist the Occupational Safety and Health Administration (OSHA) in developing safety standards, compliance strategy, and training programs for reducing work-related injuries.

The survey was conducted by the Bureau's Office of Occupational Safety and Health Statistics in cooperation with the following States: Alaska, Arkansas, California, Kentucky, Maine, Montana, North Carolina, Oregon, Tennessee, Vermont, Virginia, and Washington. BLS regional offices coordinated State operations. The Offices of Compliance; Standards Development; Statistical Studies and Analysis; and Training of OSHA and the Office of Safety Research of the National Institute for Occupational Safety and Health contributed to the planning and development of the survey. Lyn Pearson developed the questionnaire, computer programs for editing and tabulating the data, and analyzed the survey findings. Larry Jones assisted in editing survey questionnaires. Helen McDonald directed the survey under the supervision of Herbert Schaffer. We wish to acknowledge the contribution of the Western Wood Products Association which provided valuable technical assistance.

Data in the survey indicate how and why injuries occurred among the workers studied in the 12 cooperating States, but the user should exercise caution in extrapolating data to estimate injuries for the entire population. States participating in data collection may not represent the country as a whole, and reporting requirements for workers' compensation reports, the source for selecting injuries for study, vary among States. Furthermore, data collection periods are not intended to represent the entire year.

For analytical purposes, incidence rates of the injuries studied were not generated, nor can they be inferred from the data because information on hours of work during the survey period is not available. See appendix A for the scope and methodology of the survey.

A list of other Work Injury Reports published since 1978 appears at the end of this bulletin.

Contents

Summary

The Bureau of Labor Statistics conducted a survey of 1,086 injured workers in the logging industry during the period April through June 1982.[1] The survey revealed that one-half of these workers were injured while engaged in cutting operations such as felling trees, bucking logs, or removing limbs from felled trees. Injuries resulted equally from workers being struck or crushed by wood (logs, trees, etc.) and from slipping, tripping, or falling (24 percent each) while 20 percent of the injuries resulted from contact with chainsaws. Almost three-fourths of those injured missed 1 or more days of work as a result of their accidents while one-fifth were hospitalized an average of 6 nights.

The high risk of injury faced by loggers is reflected in the injury and illness rate for workers in the logging industry. In 1982, there were 20.4 injuries and illnesses per 100 full-time workers, more than 2.5 times the national rate.[2] The incidence rate of lost-workday cases for injuries and illnesses was 12.9, more than 3.5 times greater than the national rate, while the rate of lost workdays, 303.5, was over 5 times greater than the national rate.

Logging methods are generally similar in all regions of the country where trees are felled and converted into logs, although differences in terrain, type, and size of timber will dictate some variation in procedures. The tree is felled, usually with a chainsaw, branches are cut off (limbing), and the tree is measured and cut into manageable lengths (bucking). Logs are then transported (skidded or yarded) to central locations (landings) by one of several methods. Where the ground is relatively flat, logs are hooked to a tractor, known as a skidder, by steel cables and nooses called chokers, and dragged to the landing where further trimming and processing may be done. If terrain is very steep or rough, the logs may be transported by steel cables attached to a remote winching apparatus (called a yarder) via a system of cables, blocks, pulleys, and carriages. Logs are either partially suspended and dragged over the ground (high-lead yarding) or actually hoisted into the air and conveyed on overhead cables (sky-line yarding) to the landing. After logs are yarded, they are loaded, either manually or mechanically, onto trucks, railroad cars, or barges, or formed into log rafts for transport to the sawmill.

At every step in the logging process, from felling the tree to transporting it to the mill, workers are subject to a variety of hazards from the environment, type of work, and equipment used. Weather conditions are often poor since logging may continue regardless of rain, snow, or excessive heat. Terrain may be steep or rocky and, inevitably, ground litter, such as deadwood, leaves, or vines presents obstacles that restrict workers' freedom of movement. In addition, workers may encounter other hazards and nuisances such as snakes, stinging insects, poison ivy, or poison oak. The trees themselves present hazards due to their weight and bulk. Improper cutting, defects in the wood, or unexpected gusts of wind can cause a tree to fall improperly. Moreover, once on the ground, logs may roll or shift without warning. The equipment loggers use can also pose hazards. Chainsaws may kick back into the operator if the cut is not precise, if the blade is dull, or for a variety of other reasons. Skidding tractors often must be operated on uneven trails, increasing the risk of rollover, and overhead yarding systems have a variety of moving parts that may cause injury to the workers. Most logging work is physically demanding and operations are usually carried on as long as there is daylight or longer if floodlights are used.

In addition, loggers are sometimes exposed to uniquely hazardous conditions such as those found at the site of the Mount St. Helens eruption. Workers conducting salvage operations on Mount St. Helens are required to contend with heavy layers of ash that produce slippery conditions and become veritable bogs in the rain. In dry weather, windblown ash may cut visibility. The fire connected with the eruption caused the bark of trees to loosen and the wood to become brittle, fragile, and liable to unanticipated breakage. Trees were toppled in such random and unstable arrangements that more than one worker likened working on Mount St. Helens to climbing over giant pickup sticks.

Occupation

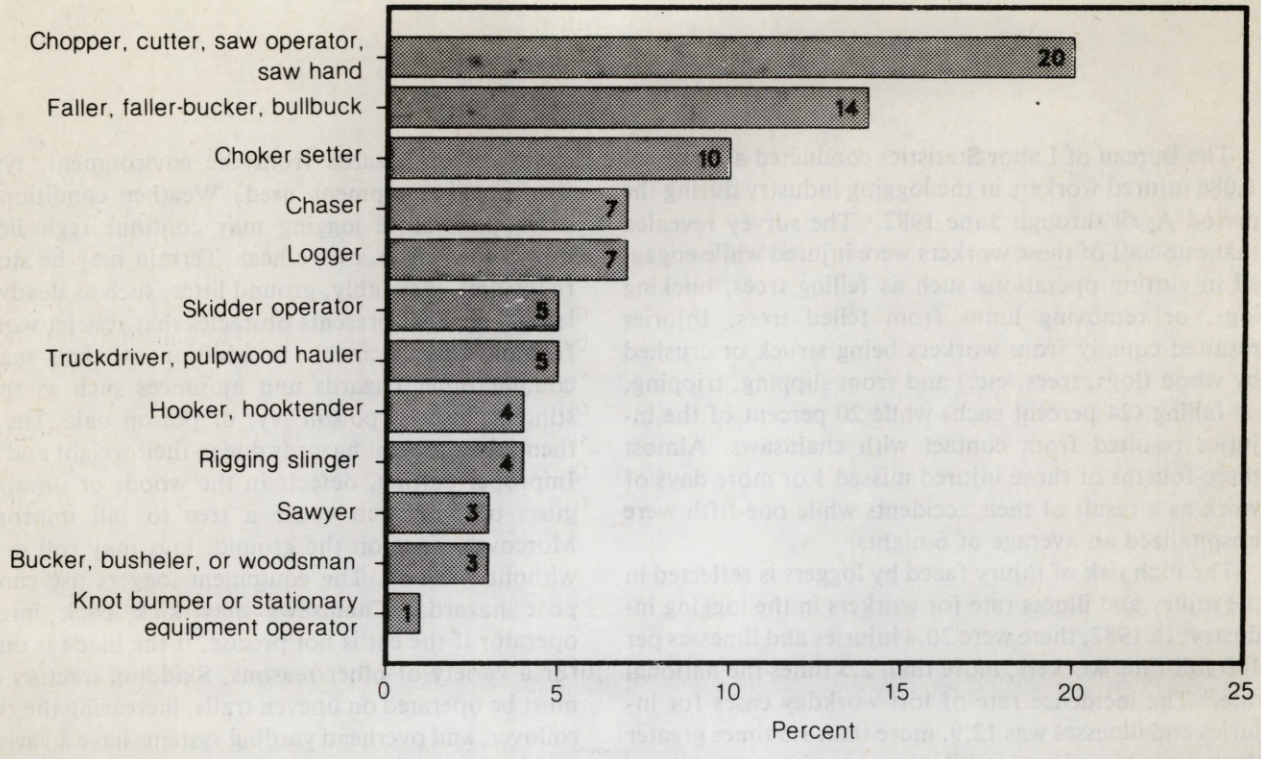
Nearly one-half the injured workers were employed in occupations that dealt almost exclusively with cutting timber or trimming logs (chart 1). These occupations were: Chopper, cutter, saw operator, or saw hand; faller, faller-bucker, or bullbuck; logger; sawyer; and bucker, busheler, or woodsman.

Sixteen percent of the workers were in occupations associated with yarding operations at the landing site: Chaser; hooker or hooktender; rigging slinger; knot

[1] See appendix A for a description of the scope of the survey.

[2] *Occupational Injuries and Illnesses in the United States by Industry, 1982,* Bulletin 2196 (Bureau of Labor Statistics, 1984), table 1.

Chart 1. Selected occupations: Injuries in the logging industry, selected States, April–June 1982



bumper; and stationary equipment operator. An equal proportion were classified either as choker setter or skidder operator, occupations involved in transporting logs away from the cutting site.

Age, experience, and method of pay

Three-fifths of those injured were less than 35 years old and, of these, about one-third were under 25 (table 2). Yet, overall, the workers were experienced, with more than four-fifths having 1 or more years of experience in the logging industry and two-fifths having at least 10 years (table 3).

Nearly two-thirds of those injured were paid on an hourly or weekly basis while one-third were paid straight piecework rates. Several workers stated they felt piecework encouraged unsafe practices since they had to work as fast as possible to make what they considered a living wage. However, hourly or weekly paid workers occasionally complained that they too were under pressure to produce as fast as possible regardless of safety. Slightly more than one-fifth of the workers indicated that working too fast was a contributing factor to their accidents.

Lost workdays, hospitalization, and injuries

Nearly three-fourths of the workers lost time because of their injuries. The average lost-time case resulted in 23 days away from work (table 4). One-fifth of those injured required hospitalization with an average hospital stay of 6 nights (table 5).

The most common injuries were cuts, lacerations, or punctures, which affected one-fourth of the workers, followed by sprains and strains, suffered by slightly fewer than one-fourth of those surveyed (table 6). Fractures accounted for about one-seventh of the injuries and were more than double the proportion found in all industries in States participating in the survey.[3] About one-third of the cases involved injury to legs, ankles, or feet. Of these, injuries to the legs, just over one-fifth of the cases, were more frequent (table 7). Injuries to the trunk (including back injuries) occurred in almost one-fourth of the cases and to the upper extremities in just under one-fifth of the cases.

Activity at time of accident

Nearly one-quarter of the injuries were accounted for by workers felling trees, while those limbing and bucking accounted for 15 and 12 percent of the injuries, respectively (chart 2). Workers who were choker setting

[3] Supplementary Data System, 1981 data excluding Arkansas, North Carolina, and Virginia.

or hooking up "turns" (logs grouped and yarded together) experienced 14 percent of the injuries; workers engaged in tractor or cable skidding operations, 9 percent of the injuries. The proportions of injuries resulting from chasing activities and loading or unloading were 5 percent each. Four percent of the injuries occurred to workers involved in rigging cable yarding systems (setting up skid cables, blocks and tackles, guylines, etc.).

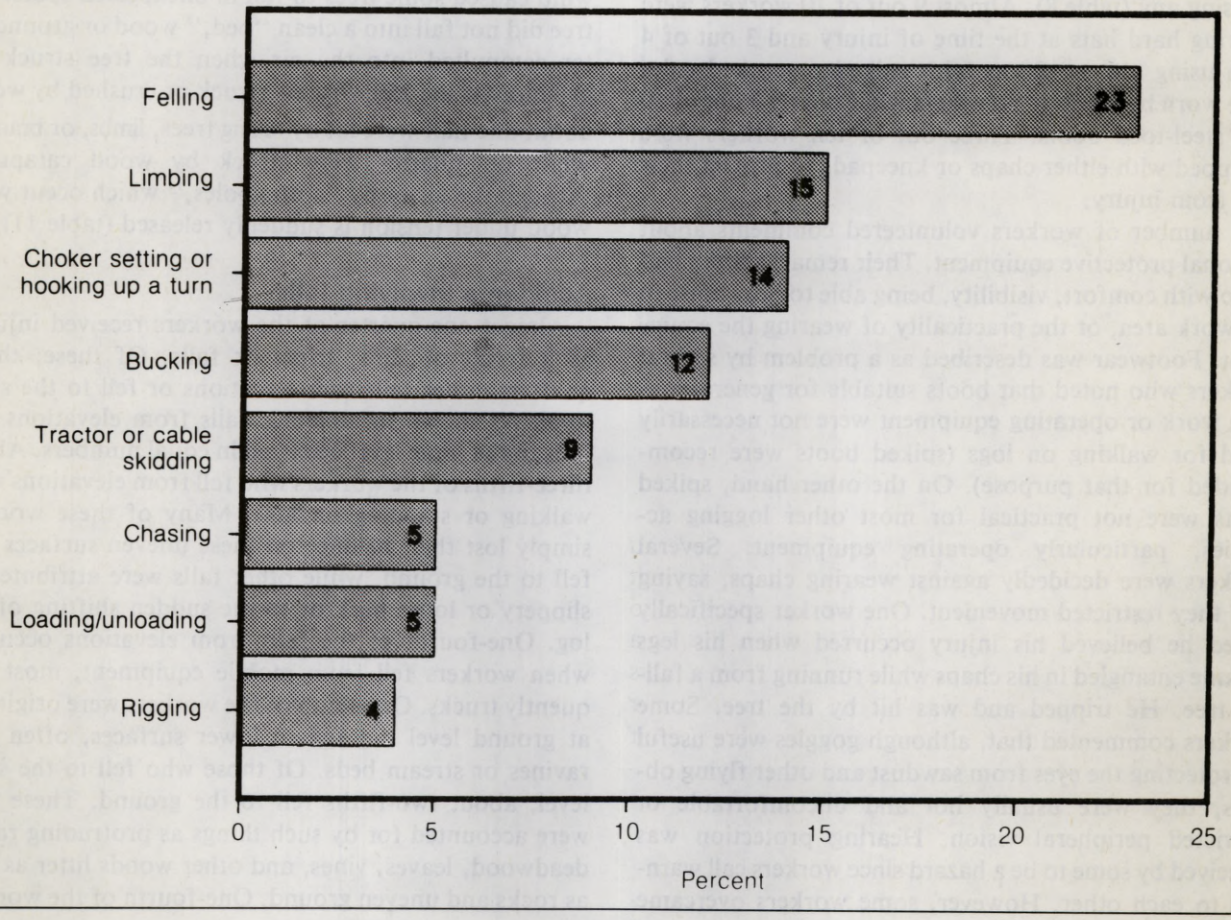
The potential for injury in these activities is best illustrated by a description of the logging process itself and attendant hazards. In felling a tree, the cutter must take into consideration weather conditions, especially wind; terrain and slope of the cutting site; and the condition of the tree (particularly its lean) and trees surrounding it; and where the tree will ultimately fall. If any of the several cuts required to fell the tree are made improperly, it may fall in the wrong place, snap off the stump (an occurrence known as barber-chairing), or become tangled in other trees on the way down. As the tree falls, limbs can break off or deadwood can be catapulted from the ground when the tree lands.

After the tree is felled, most of the limbs must be removed before it can be transported from the cutting site. If the tree is large, it will be bucked into shorter, more manageable lengths. Both limbing and bucking are potentially hazardous since felled trees may be unstable and work often involves climbing over the logs and cutting in awkward positions.

Once trees are felled, limbed, and bucked, they must be transported over skid trails to the landing site. Logs are either attached to tractors for tractor skidding, or to cable systems for cable yarding. Workers known as choker setters slip a noose or choker around the log and fasten it. This, in turn, is hooked up to the tractor cable or cable yarding system. Choker setters are subject to many of the same hazards as fallers, limbers, and buckers; the primary dangers are shifting logs, falling wood, or unsafe footing. Skidder operators, on the other hand, must contend with narrow, often uneven, skid trails. The operator must guard against overturning the tractor, being struck by limbs from surrounding trees, or getting his turn of logs caught on obstructions.

When logs reach the landing, they are unhooked from

Chart 2. Selected activity at time of accident: Injuries in the logging industry, selected States, April-June 1982



the yarding system. If tractor skidding is performed, the tractor operator may handle this task but if a cable yarding system is used, workers known as chasers unhook the logs. The wood is then stacked to await loading for transport to the mill.

Location, terrain, and ground cover

The logging site can be roughly divided into three major areas: The cutting site, the landing, and the skid trails in between. More than one-half of all injuries occurred at the cutting site; one-fifth at the landing; and slightly fewer than one-fifth, on skid trails (table 9). Most of the remaining injuries occurred on roads while workers were transporting logs, equipment, or other workers.

Sloping terrain and ground cover of any type tend to hamper movement of fallers and other personnel whether moving from one cutting site to another or running from falling trees. Nearly three-fifths of the workers reported that their accidents occurred on moderately or steeply sloped terrain and more than three-fifths said the ground was covered with moderate to heavy brush or ground cover.

Protective equipment and safety features

Most workers were wearing some personal protective equipment; only 4 percent stated they were not wearing or using any (table 8). Almost 9 out of 10 workers were wearing hard hats at the time of injury and 3 out of 4 were using gloves. Boots with calked or corked soles were worn by 3 out of 5 workers while nearly 3 out of 10 had steel-toed boots. Three out of ten workers were equipped with either chaps or kneepads to protect their legs from injury.

A number of workers volunteered comments about personal protective equipment. Their remarks often had to do with comfort, visibility, being able to hear noise in the work area, or the practicality of wearing the equipment. Footwear was described as a problem by several workers who noted that boots suitable for general logging work or operating equipment were not necessarily good for walking on logs (spiked boots were recommended for that purpose). On the other hand, spiked boots were not practical for most other logging activities, particularly operating equipment. Several workers were decidedly against wearing chaps, saying that they restricted movement. One worker specifically stated he believed his injury occurred when his legs became entangled in his chaps while running from a falling tree. He tripped and was hit by the tree. Some workers commented that, although goggles were useful in protecting the eyes from sawdust and other flying objects, they were usually hot and uncomfortable or restricted peripheral vision. Hearing protection was perceived by some to be a hazard since workers call warnings to each other. However, some workers overcame this problem by using whistles or a visual code system to indicate such things as falling trees or moving equipment in the vicinity.

Workers operating tractors, trucks, or other mobile equipment when injured were asked what safety features were present on the equipment. Although there were seat belts in 32 of the 51 vehicles, only six workers indicated they were using them. Almost three-fifths of the vehicles had cages or covers to protect against falling objects while slightly more than one-half had rollover protection.

More than 7 out of 10 workers injured by chainsaws indicated the saws had one or more safety features. The most common, present on 4 out of 10 saws, was a low-kickback chain. More than 3 out of 10 saws were equipped with chain brakes and 2 out of 10, with deadman switches.

Accidents involving workers struck by wood

Nearly one-fourth of the workers were struck or crushed by limbs, trees, or logs, making this one of the most prominent causes of injury (table 10). These accidents occurred in a variety of ways. Deadwood or "widow makers" were sometimes released spontaneously or during the felling process as the tree dropped or as it struck nearby trees on the way down. Factors such as twisted or leaning trunks, rotted wood, or wind caused some trees to fall in unexpected spots. If a tree did not fall into a clean "bed," wood or ground litter catapulted into the air when the tree struck the ground. Of the 259 workers struck or crushed by wood, about one-half were hit by falling trees, limbs, or branches while one-quarter were struck by wood catapulted through the air or by "springpoles," which occur when wood under tension is suddenly released (table 11).

Accidents involving falls

Almost one-quarter of the workers received injuries as a result of slips, trips, or falls. Of these, three-quarters either fell from elevations or fell to the same level. As shown in table 12, falls from elevations and falls to the same level occurred in equal numbers. About three-fifths of the workers who fell from elevations were walking or standing on logs. Many of these workers simply lost their balance on these uneven surfaces and fell to the ground, while other falls were attributed to slippery or loose bark or to the sudden shifting of the log. One-fourth of the falls from elevations occurred when workers fell from mobile equipment, most frequently trucks. One-tenth of the workers were originally at ground level but fell to lower surfaces, often into ravines or stream beds. Of those who fell to the same level, about two-fifths fell to the ground. These falls were accounted for by such things as protruding roots, deadwood, leaves, vines, and other woods litter as well as rocks and uneven ground. One-fourth of the workers

who fell to the same level landed on felled trees or other wood on the ground.

Accidents involving chainsaws

One-fifth of the workers were injured by chainsaws. Nearly two-thirds of these workers said that the accident occurred when the saw kicked back. Most of the other injuries involving chainsaws occurred when workers fell on their saws (table 13). Over three-fourths of those injured by chainsaws were cutting with the saw when the injury occurred.

Safety training

More than 6 out of 10 workers indicated they received safety training in logging (table 14). Supervisors or employers provided safety training to 4 out of 10 workers and nearly 3 out of 10 were trained by a coworker.

Factors contributing to the accident

Almost two-thirds of the workers cited one or more natural conditions that contributed to their accidents (table 15). Close to one-fifth said heavy brush or ground cover was responsible while slightly more than one-tenth blamed steep terrain. About one-tenth also indicated that springpoles or wood under tension caused their accidents.

In responding to a question regarding other contributing factors, slightly more than one-fifth of the workers blamed their accidents on working too fast. The next most frequently mentioned contributing factors were: Misjudging time or distance needed to avoid injury, cited by one-seventh of the workers; and being unaware of hazards, one-tenth of the workers.

Time of accident and rest periods

Workers were asked to provide information about when during the workday their accidents occurred. Relatively few accidents, 7 percent, happened during the first hour of work and slightly more than double this amount occurred during the second hour. Accidents peaked during the third hour of work and dropped off during the rest of the workday (chart 3).

In general, those responding to the survey took pride in the physical demands of their work and seemed resigned to the fact they would experience accidents occasionally. Although climbing through underbrush or up and down hills or mountains while carrying a chainsaw or other logging equipment places stress on the body, relatively few workers, only 64, attributed their accidents to fatigue. However, one-third of the accidents occurred when the person injured had been working from 1 to 2 hours without a break and a similar proportion occurred after 2 to 4 hours of unbroken work (table 16).

Comparison of Western and nonwestern States

Because of variations in terrain and size of timber being cut, there are some fundamental differences in western and nonwestern logging practices. Selected data[4] for participating Western States—Alaska, California, Montana, Oregon, and Washington—were compared to the nonwestern States in the survey—Arkansas, Kentucky, Maine, North Carolina, Tennessee, Vermont, and Virginia.

Western workers were more than 3 times as likely to be working on steep terrain as workers in nonwestern States (table 9). They were also more likely to be engaged in clearcut logging while selective cutting was more prominent in the other States.

Occupational classifications of injured workers varied by region (table 1). Occupations in the Western States tended to be more task-specific, that is, fallers generally restricted their activities to felling trees and choker setters to attaching logs by cable to skidders or cable yarding systems. In other areas of the country, workers frequently performed a wider variety of jobs, and this is reflected in more generalized job titles such as logger or woodsman.

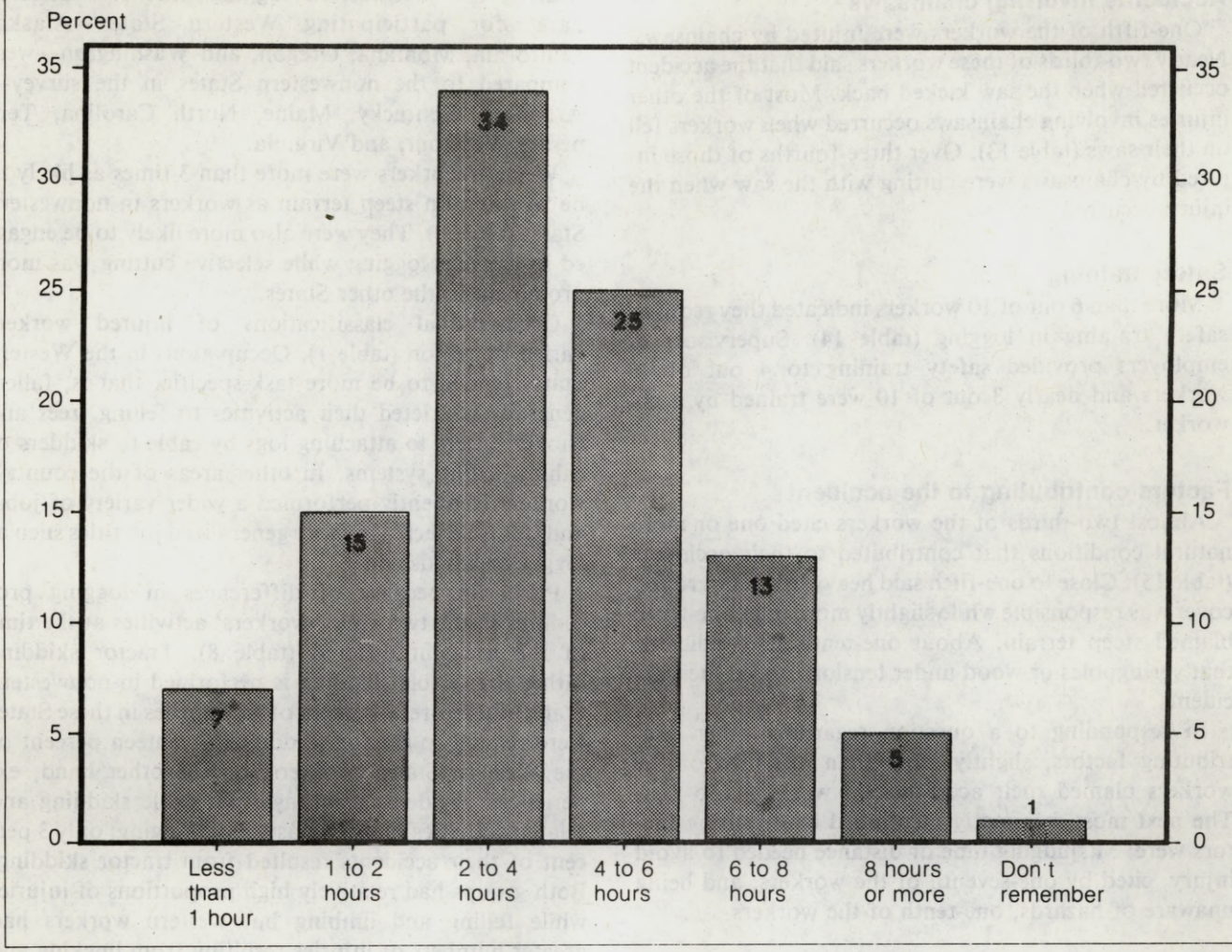
Primarily because of differences in logging procedures in the two areas, workers' activities at the time of the accident differed (table 8). Tractor skidding rather than cable skidding is performed in nonwestern States; therefore, 9 percent of the injuries in these States were related to tractor skidding. Seventeen percent of the Western States' workers, on the other hand, experienced accidents resulting from cable skidding and related activities such as chasing and rigging; only 3 percent of their accidents resulted from tractor skidding. Both groups had relatively high proportions of injuries while felling and limbing but western workers had greater numbers of injuries resulting from bucking and choker setting, possibly explained by the large size of the logs these workers handle.

Western States' workers frequently wore more protective equipment than loggers in nonwestern States (table 8). Proportionately, western workers wore calked boots nearly 4 times more often than nonwestern workers and earplugs or hearing protection about 3.5 times more often. These workers also wore dust masks, glasses, gloves, goggles, and hard hats more frequently than nonwestern workers. However, workers in nonwestern States were more likely to use leg protection and boots with steel toes.

With a few exceptions, both groups of workers attributed their accidents to similar causes (table 15). Reflective of the difference in terrain, western workers cited steep worksites as contributing factors more than 5

[4] Due to differences in workers' compensation reporting requirements, lost workdays, nature of injury, and related data were not compared for Western and nonwestern States.

Chart 3. Hours worked prior to accident: Injuries in the logging industry, selected States, April-June 1982



times as frequently as nonwestern workers. On the other hand, nonwestern workers stated that snags or deadwood in the trees contributed to their accidents twice as often as western workers. Other notable differences in contributing factors were that nonwestern workers said their accidents resulted from being unaware of hazards or from using the wrong cutting method about twice as frequently as those in the West, a possible reflection on their level of training in safe logging procedures. One-half of the nonwestern workers stated they never received safety training as opposed to slightly less than one-third of the western workers (table 14).

Table 1. Occupation: Injuries in the logging industry, selected States by region, April-June 1982

Occupation	All States		Western States	Non-western States
	Number	Percent	Percent	
Total	1,086	100	100	100
Bucker	11	1	1	-
Busheler	8	1	1	-
Chaser	71	7	10	-
Choke setter, choker setter	106	10	14	-
Chopper, cutter, saw operator, saw hand, etc.	217	20	10	40
Faller, faller-bucker, bullbuck	148	14	20	1
Hooker or hooktender	48	4	7	-
Knot bumper	5	([1])	1	-
Laborer, brusher	14	1	2	1
Logger	71	7	6	7
Owner	5	([1])	1	-
Rigger	8	1	1	-
Rigging slinger, slinger	39	4	5	-
Sawyer	30	3	4	1
Skidder operator	57	5	4	8
Supervisor or foreman	7	1	1	([1])
Truckdriver or pulpwood hauler	57	5	5	5
Mobile equipment operator, n.e.c.	24	2	2	3
Stationary equipment operator	11	1	1	-
Woodsman	14	1	-	4
Other	41	4	3	5
Nonclassifiable	94	9	1	25

[1] Less than 0.5 percent.
n.e.c. = not elsewhere classified.
NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Dashes indicate that no data were reported.
SOURCE: State workers' compensation reports.

Table 2. Age of worker: Injuries in the logging industry, selected States, April-June 1982

Age	Number	Percent
Total	1,086	100
16-19 years	40	4
20-24 years	196	18
25-34 years	413	38
35-44 years	188	17
45-54 years	109	10
55-64 years	58	5
65 years or more	6	1
Not available	76	7

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey.
SOURCE: State workers' compensation reports.

Table 3. Work experience and method of pay: Injuries in the logging industry, selected States, April-June 1982

Experience and method of pay	All States		Western States	Non-western States
	Number	Percent	Percent	
Length of time in logging				
Total	1,064	100	100	100
Less than 1 month	46	4	4	6
1 to 6 months	60	6	5	7
6 months to 1 year	55	5	3	9
1 to 5 years	250	23	24	23
5 to 10 years	237	22	25	17
10 years or more	416	39	39	39
Method of pay				
Total	1,060	100	100	100
By the cord, load, or other piecework basis	352	33	19	64
Hourly or weekly	694	65	79	36
Other	14	1	2	-

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.
SOURCE: Survey questionnaires.

Table 4. Estimated days away from work: Injuries in the logging industry, selected States, April-June 1982

Days away from work	Number	Percent
Total [1]	1,050	100
No days away from work	270	26
1 to 5 days	234	22
6 to 10 days	103	10
11 to 15 days	57	5
16 to 20 days	58	6
21 to 25 days	27	3
26 to 30 days	47	4
31 to 40 days	45	4
41 to 60 days	43	4
More than 60 days	50	5
Lost-time cases for which days away from work were not estimated	116	11
Mean days away from work per lost-workday case	23	
Median days away from work per lost-workday case	10	

[1] Excludes 5 workers for whom data were not available because they retired, were laid off, or put on permanent disability.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question.
SOURCE: Survey questionnaires.

Table 5. Length of hospitalization required: Injuries in the logging industry, selected States, April-June 1982

Length of hospitalization	Number	Percent
Total	1,059	100
No hospitalization required	849	80
1 night	29	3
2 nights	26	2
3 nights	27	3
4 nights	16	2
5 nights	26	2
6 nights	11	1
7 nights	13	1
8 nights	15	1
9 nights	3	(1)
10 nights	6	1
11 to 20 nights	9	1
21 to 30 nights	8	1
More than 30 nights	4	(1)
Hospitalized cases for which length of hospitalization was not estimated	17	2
Mean length (nights) of hospitalization per hospitalized case		6
Median length (nights) of hospitalization per hospitalized case		4

[1] Less than 0.5 percent.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question.

SOURCE: Survey questionnaires.

Table 6. Nature of injury: Injuries in the logging industry, selected States, April-June 1982

Nature of injury	Number	Percent
Total	1,086	100
Amputation or enucleation	8	1
Burn or scald (heat)	9	1
Concussion—brain, cerebral	10	1
Contusion, crushing, bruise—intact skin surface	177	16
Cut, laceration, puncture—open wound	272	25
Dermatitis	1	(1)
Dislocation	15	1
Fracture	139	13
Heat stroke, sunstroke, heat cramps, heat exhaustion, and other effects of environmental heat	1	(1)
Hernia, rupture	3	(1)
Inflammation or irritation of joints, tendons, or muscles	7	1
Poisoning, systemic	12	1
Scratches, abrasions (superficial wounds)	51	5
Sprains, strains	264	24
Multiple injuries	46	4
Nervous system, conditions of	2	(1)
Heart condition (includes heart attack)	1	(1)
Other injury, n.e.c.	6	1
Nonclassifiable	62	6

[1] Less than 0.5 percent.

n.e.c. = not elsewhere classified.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey.

SOURCE: State workers' compensation reports.

Table 7. Part of body affected: Injuries in the logging industry, selected States, April-June 1982

Part of body	Number	Percent
Total	1,086	100
Head	141	13
Head, uns.	3	(1)
Brain	10	1
Ear(s)	5	(1)
Ear(s), uns.	1	(1)
Ear(s), external	1	(1)
Ear(s), internal	3	(1)
Eye(s)	66	6
Face	42	4
Face, uns.	3	(1)
Jaw	1	(1)
Mouth	26	2
Nose	2	(1)
Face, multiple parts	1	(1)
Face, n.e.c.	9	1
Scalp	5	(1)
Skull	2	(1)
Head, multiple	6	1
Head, n.e.c.	2	(1)
Neck	14	1
Upper extremities	196	18
Arm(s)	67	6
Arm, uns.	20	2
Upper arm	5	(1)
Elbow	20	2
Forearm	18	2
Arm, multiple	1	(1)
Arm, n.e.c.	3	(1)
Wrist	16	1
Hand	39	4
Finger(s)	69	6
Upper extremities, multiple	5	(1)
Trunk	252	23
Abdomen	9	1
Back	138	13
Chest	36	3
Hips	22	2
Shoulder(s)	39	4
Trunk, multiple	8	1
Lower extremities	365	34
Leg(s)	241	22
Leg, uns.	43	4
Thigh	27	2
Knee	118	11
Lower leg	45	4
Leg, multiple	6	1
Leg, n.e.c.	2	(1)
Ankle	54	5
Foot	48	4
Toe(s)	7	1
Lower extremities, multiple	15	1
Multiple parts	93	9
Body system	12	1
Body system, uns.	10	1
Circulatory system	1	(1)
Nervous system	1	(1)
Body parts, n.e.c.	1	(1)
Nonclassifiable	12	1

[1] Less than 0.5 percent.
uns. = unspecified.
n.e.c. = not elsewhere classified.
NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey.
SOURCE: State workers' compensation reports.

Table 8. Activity at time of accident: Injuries in the logging industry, selected States by region, April-June 1982

Activity	All States		Western States	Non-western States
	Number	Percent	Percent	
Activity of injured worker				
Total	1,084	100	100	100
Brushing (clearing brush)	25	2	2	3
Bucking	134	12	14	8
Felling	253	23	19	33
Limbing	165	15	11	24
Bunching	3	(1)	–	1
Cable skidding (high-lead, slack-line, etc.)	40	4	5	–
Chasing	49	5	7	–
Choker setting	133	12	16	4
Hooking up a turn	23	2	2	2
Rigging	39	4	5	(1)
Tractor skidding	52	5	3	9
Hauling logs to mill	15	1	1	2
Loading/unloading logs	51	5	4	5
Constructing or maintaining roads or skid roads	11	1	1	1
Repairing or servicing equipment	43	4	4	4
Other logging activity	48	4	5	3
How often worker normally performed this activity				
Total	1,069	100	100	100
First time worker did this type of work	24	2	3	1
Daily or almost every day	921	86	85	89
Several times a month	75	7	8	4
About once a month	20	2	2	2
Seldom—less than once a month	29	3	3	3
Protective equipment worn or used at time of accident				
Total [2]	1,057	(2)	(2)	(2)
Boots with calked or corked soles	659	62	81	22
Dust mask	16	2	2	(1)
Earplugs or other type of hearing protection	264	25	32	9
Glasses	144	14	17	7
Gloves	788	75	83	57
Goggles	35	3	4	2
Hard hat	916	87	91	77
Leg protection (chaps or kneepads)	303	29	24	39
Seat belt	6	1	1	(1)
Steel toes in boots	295	28	9	69
Other	19	2	2	1
Not wearing or using protective equipment	38	4	2	7
Workers injured while operating mobile equipment: To worker's knowledge, safety features vehicle or equipment had				
Total [2]	51	(2)	(2)	(2)
Cage or cover to protect against falling objects	30	59	55	64
Rollover protection	27	53	48	59
Seat belt	32	63	69	55
Other	4	8	10	5
Not aware of any safety equipment	5	10	10	9

[1] Less than 0.5 percent.

[2] Because more than one response is possible, the sum of the responses and percentages are calculated by dividing each response by the total number of persons who answered the question.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.

SOURCE: Survey questionnaires.

Table 9. Description of worksite: Injuries in the logging industry, selected States by region, April-June 1982

Description of worksite	All States		Western States	Non-western States
	Number	Percent	Percent	
Location at time of accident				
Total	1,073	100	100	100
Cutting site	570	53	47	66
Landing	219	20	24	14
Skid trail or between cutting site and landing	188	18	20	12
Employer-built road	34	3	3	3
County, State, or interstate road	17	2	1	2
Other	45	4	5	3
Terrain where accident occurred				
Total	1,070	100	100	100
Flat ground	476	44	36	62
Medium slope	388	36	38	32
Steep slope	206	19	25	7
Ground cover where accident occurred				
Total	1,057	100	100	100
Little or no brush	369	35	35	35
Moderate brush	386	37	38	33
Heavy brush [1]	273	26	26	25
Swampy, marshy, boggy	29	3	1	7
Use of wood being logged at time of accident				
Total	1,007	100	100	100
Pulpwood	357	35	20	68
Other	478	47	60	22
Don't know	172	17	21	10
Type of logging being done at worksite				
Total	1,020	100	100	100
Clearcut	630	62	68	48
Selective cut—partial cut (selected trees)	273	27	21	40
Salvage logging	80	8	8	6
Don't know	37	4	3	6

[1] Includes two cases identified only as heavy snow.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question.

SOURCE: Survey questionnaires.

Table 10. Description of accident: Injuries in the logging industry, selected States by region, April-June 1982

Description of accident	All States		Western States	Non-western States
	Number	Percent	Percent	
Total	1,086	100	100	100
Injured by a chainsaw, excluding overexertion	222	20	17	28
Struck against	12	1	1	1
Struck by	182	17	13	24
Fall from elevation	7	1	1	–
Fall on same level	21	2	2	3
Chip, pine needle, or other object went into eye(s)	55	5	5	5
Hit or crushed by limb, tree, or log	259	24	20	32
Hit by cable, hook, chain, or choker bell	60	6	7	2
Strained while lifting, using, or moving tools, equipment, or logs	85	8	9	4
Slipped, tripped, or fell [1]	258	24	28	14
Fall from elevation	98	9	11	4
Fall on same level	96	9	10	6
Bodily reaction or motion	64	6	7	5
Mobile equipment accident	33	3	3	3
Other	114	10	10	11

[1] Excludes 28 cases where the worker fell onto a chainsaw; these cases are included in chainsaw injuries.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.

SOURCE: Survey questionnaires and State workers' compensation reports.

Table 11. Selected description of accident by source of injury: Injuries in the logging industry, selected States by region, April-June 1982

Description of accident by source of injury	All States		Western States	Non-western States
	Number	Percent	Percent	
Hit or crushed by limb, tree, or log				
Total	259	100	100	100
Hit or crushed by:				
Falling wood	127	49	36	66
Rolling log(s)	37	14	21	5
Logs rigged for yarding	30	12	16	5
Wood, n.e.c., uns. [1]	65	25	27	23
Strained while lifting, using, or moving tools, equipment, or logs				
Total	85	100	100	100
Strained while lifting, using, or moving:				
Brush or shrubs	1	1	1	–
Ground wood	3	4	3	7
Rigged log(s) on highline, skyline, or other overhead yarding system	1	1	1	–
Stacked logs	1	1	1	–
Standing timber	5	6	–	33
Wood, n.e.c., uns.	5	6	4	13
Cable, chain, rope, choker, etc. used in rigging, skidding, or yarding operations	30	35	41	7
Log truck	4	5	6	–
Chainsaw	24	28	29	27
Nonpowered handtool	5	6	7	–
Other or nonclassifiable	6	7	6	13
Mobile equipment accident				
Total	33	100	100	100
Source of injury:				
Skidder	9	27	29	25
Log truck	17	52	48	58
Mobile equipment, n.e.c.	2	6	5	8
Ground surface	1	3	5	–
Other or nonclassifiable	4	12	14	8

[1] Includes flying or catapulted wood and springpoles.

n.e.c. = not elsewhere classified.

uns. = unspecified.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.

SOURCE: Survey questionnaires and State workers' compensation reports.

Table 12. Falls from elevations or to the same level: Injuries in the logging industry, selected States by region, April-June 1982

Falls	All States		Western States	Non-western States
	Number	Percent	Percent	
Total [1]	222	100	100	100
Falls from elevations	105	47	51	33
Falls to the same level	117	53	49	67
Falls from elevations				
Total	105	100	100	100
Surface fell from:				
Ground level	9	9	5	29
Ground wood, rolling or moving	16	15	16	7
Ground wood, stationary, including stacked logs	46	44	49	7
Standing timber	2	2	2	–
Skidder	8	8	7	14
Truck	14	13	11	29
Mobile equipment, n.e.c., uns.	4	4	3	7
Yarder	3	3	3	–
Other	2	2	2	–
Unknown	1	1	–	7
Falls to the same level				
Total	117	100	100	100
Fell to:				
Ground surface or tools at ground level	48	41	43	34
Ground wood, stationary, including stacked logs	29	25	26	21
Skidder	2	2	–	7
Truck	1	1	1	–
Yarder	2	2	2	–
Other	8	7	8	3
Unknown	27	23	19	34

[1] Includes cases where worker fell onto chainsaw.
n.e.c. = not elsewhere classified.
uns. = unspecified.
NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.
SOURCE: Survey questionnaires and State workers' compensation reports.

Table 13. Injuries involving chainsaws: Injuries in the logging industry, selected States by region, April-June 1982

Chainsaw injuries	All States		Western States	Non-western States
	Number	Percent	Percent	
Reason worker was injured by chainsaw				
Total [1 2]	220	([1])	([1])	([1])
Chainsaw kicked back	140	64	56	74
Using wrong size saw or length bar for cut being made	3	1	2	-
Fell on saw	28	13	15	9
Reached across saw	-	-	-	-
Hand slipped into chain of saw	14	6	6	6
Cutting method was wrong	7	3	3	3
Saw kept running after it was turned off (coasting)	2	1	-	2
Chain on saw broke	7	3	5	1
Saw was in bad condition or didn't work right	1	([3])	-	1
Didn't have tight grip on saw	15	7	7	6
Other	39	18	22	12
Use of saw at time of accident				
Total	220	100	100	100
Getting ready to make a cut	8	4	6	1
Had just finished cut	25	11	10	13
Cutting a tree, limb, etc.	169	77	73	82
Other	18	8	11	4
Size of chainsaw engine				
Total	203	100	100	100
Smaller than 3.0 cubic inches (less than 49 ccs)	8	4	4	4
3.0 to 4.0 cubic inches (49 to 65 ccs)	39	19	11	32
4.0 to 5.0 cubic inches (65 to 82 ccs)	58	29	29	28
5.0 cubic inches or larger (more than 82 ccs)	61	30	47	5
Don't know	37	18	9	32
To workers' knowledge, safety features chainsaw had				
Total [1]	197	([1])	([1])	([1])
Bar tip/nose guard	26	13	4	26
Chain brake	66	34	17	57
Deadman switch	38	19	19	20
Low kickback chain	78	40	37	44
Low kickback guide bar	33	17	17	17
Other kickback protection	9	5	7	1
Other	5	3	3	2
None	53	27	35	16

[1] Because more than one response is possible, the sum of the responses and percentages may not equal the total. Percentages are calculated by dividing each response by the total number of persons who answered the question.

[2] Excludes overexertion cases where chainsaw was source of injury.

[3] Less than 0.5 percent.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.

SOURCE: Survey questionnaires.

Table 14. Safety training: Injuries in the logging industry, selected States by region, April-June 1982

Worker safety training	All States		Western States	Non-western States
	Number	Percent	Percent	
Source of safety training in logging				
Total [1]	1,046	(')	(')	(')
Never received any safety training [2]	392	37	31	51
Supervisor or employer	419	40	45	29
Co-worker (other than supervisor)	300	29	37	11
Relative	200	19	21	16
Other	72	7	6	9

[1] Because more than one response is possible, the sum of the responses and percentages are calculated by dividing each response by the total number of persons who answered the question.

[2] Includes workers who said they learned safety on their own.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question.

SOURCE: Survey questionnaires.

Table 15. Conditions or factors contributing to accident: Injuries in the logging industry, selected States by region, April-June 1982

Conditions or factors worker felt contributed to accident	All States		Western States	Non-western States
	Number	Percent	Percent	
Natural conditions at the worksite				
Total [1]	934	(')	(')	(')
Twist, rot, knots, lean, or other defects in tree.	63	7	6	9
Snag or deadwood in tree	75	8	6	12
Springpole or wood under tension	105	11	11	12
Hidden wood on ground (wood hidden by ground cover, etc.)	61	7	6	7
Weather conditions at time of accident (raining, sleeting, windy, etc.)	56	6	6	5
Slippery conditions (mud, standing water, etc.)	80	9	8	9
Heavy brush or ground cover	173	19	19	18
Steep worksite	109	12	16	3
Other natural conditions	71	8	9	4
No natural conditions contributed to accident	335	36	37	33
Other contributing factors				
Total [1]	839	(')	(')	(')
Co-worker's activity	54	6	7	5
Working too fast	186	22	22	23
Too noisy	13	2	1	4
Working when tired or fatigued	64	8	9	5
Working when under stress	39	5	5	5
Lifting, pushing, or moving an object that was too heavy or bulky	45	5	5	5
Misjudged time or distance needed to avoid injury	118	14	14	15
Not paying full attention to work	65	8	8	8
Being unaware of hazards such as snags, springpoles, etc	83	10	8	14
Cutting method was wrong	35	4	3	6
Other	53	6	7	5
No other factors contributed to injury	282	34	35	31

[1] Because more than one response is possible, the sum of the responses and percentages are calculated by dividing each response by the total number of persons who answered the question.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question.

SOURCE: Survey questionnaires.

Table 16. Hours worked and rest periods prior to accident: Injuries in the logging industry, selected States by region, April-June 1982

Hours worked and rest periods	All States		Western States	Non-western States
	Number	Percent	Percent	
Length of time worked prior to accident				
Total	1,069	100	100	100
Less than 1 hour	78	7	6	9
1 to 2 hours	157	15	15	15
2 to 4 hours	363	34	36	29
4 to 6 hours	270	25	25	26
6 to 8 hours	136	13	12	15
8 hours or more	51	5	5	5
Don't remember	14	1	1	2
Length of time worked, prior to accident, without a break for rest or lunch				
Total	1,055	100	100	100
Less than 1 hour	210	20	18	24
1 to 2 hours	352	33	32	35
2 to 4 hours	360	34	36	29
4 hours or more	98	9	10	7
Don't remember	35	3	3	4

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question.
SOURCE: Survey questionnaires.

Table 17. Source of injury: Injuries in the logging industry, selected States by region, April-June 1982

Source of injury	All States		Western States	Non-western States
	Number	Percent	Percent	
Total	1,086	100	100	100
Timber or wood:				
Brush or shrubs	6	1	1	(1)
Choked, but not "hooked up" or otherwise rigged for skidding or yarding	17	2	2	1
Falling	129	12	7	21
Ground (stationary, unrigged)	52	5	5	3
Rolling	44	4	5	2
Rigged on highline, skyline, or other overhead yarding system	6	1	1	(1)
Rigged for ground skidding or yarding	23	2	2	1
Stacked	2	(1)	(1)	-
Standing	16	1	1	2
Wood or timber, n.e.c., uns. [2]	80	7	7	9
Cable, chain, rope, choker, or choker bell used in:				
Tractor skidding	5	(1)	1	-
Other yarding operations	28	3	3	1
Unspecified skidding or yarding	24	2	3	1
Rigging	38	3	5	(1)
Operations other than skidding or yarding	9	1	1	1
Equipment or vehicle:				
Log truck	28	3	2	3
Skidder	26	2	2	3
Mobile equipment, n.e.c.	6	1	1	1
Yarder, stationary	6	1	1	(1)
Tool:				
Chainsaw	246	23	20	29
Nonpowered handtools	13	1	2	(1)
Other:				
Bodily motion	85	8	8	7
Ground surface	69	6	8	2
Surface, n.e.c., uns.	34	3	4	2
Wood chips, sawdust, metal chips, pine needles, splinters	42	4	5	2
Other, including insect and snake bites	43	4	3	5
Nonclassifiable	9	1	1	1

[1] Less than 0.5 percent.

[2] Includes wood propelled with force, such as a limb being struck by a skidder, flying back and hitting the driver, or wood released from tension, such as a springpole.

n.e.c. = not elsewhere classified.
uns. = unspecified.

NOTE: Due to rounding, percentages may not add to 100. See appendix A for the scope of the survey. Because incomplete questionnaires were used, the total number of responses may vary by question. Dashes indicate that no data were reported.

SOURCE: Survey questionnaire and State workers' compensation reports.

Table 18. Sex of worker: Injuries in the logging industry, selected States, April-June 1982

Sex	Number	Percent
Total	1,086	100
Men	1,079	99
Women	7	1

NOTE: See appendix A for the scope of the survey.

SOURCE: State workers' compensation reports.

Appendix A. Survey Explanatory Note

The survey was designed to gather information on injuries to workers in the logging industry (Standard Industrial Classification 241). Included were all injuries incurred while performing logging activities at the logging site or while transporting logs with the exception of injuries to workers in helicopters or resulting from assaults. Motor vehicle accidents were included if they took place at the worksite; while hauling logs to the mill; returning from the mill; or transporting tools, equipment, or workers to or from the logging site in company-owned vehicles. Excluded were injuries resulting in fatalities or those in which more than 120 days had elapsed between the time of the injury and the beginning of the survey.

The survey covered the 12 States listed in appendix B. To identify cases within the scope of the survey, staff of the State agencies reviewed employers' reports of injuries required by State workers' compensation laws and mailed questionnaires to injured workers selected for study. Cooperation was requested on a voluntary basis. During the survey period, April through June 1982, 1,086 survey questionnaires were returned and found to be within the scope of the survey, resulting in a 60-percent response rate.

Although the data were aggregated for all participating States, it should be noted that workers' compensation cases selected for study reflect differences in reporting requirements. For example, some States require reporting of workers' compensation cases involving medical treatment regardless of lost time, while others limit reporting to cases involving lost time ranging from 1 to 8 days.

No attempt was made to weight the data to be representative of all logging injuries. Although participating States provided a broad geographical mix, they were not selected to statistically represent the country as a whole. Moreover, collection for the survey was terminated when responses exceeded 750 cases.

Estimates of mean and median lost workdays and nights of hospitalization do not include cases in which workers indicated lost time or hospitalization but failed to provide numerical estimates of the amount of time.

All usable responses from incomplete questionnaires were used in the tabulations. Consequently, response rates among questions vary. No attempt was made to adjust the data for nonresponse.

Information on the employer's industry classification and the worker's age, sex, nature of injury, and part of body injured were classified and tabulated for all respondents based on information furnished by the employer in the workers' compensation report. Codes for source of injury and occupation were developed by BLS to capture data unique to the logging industry. Codes for falls, specifically the surface from which the worker fell and the impact surface, were based on the American National Standards Institute concept for recording accident facts (ANSI Z16.2) but expanded to provide additional detail.

Numerical values shown in tables were actual counts while percentages were rounded to the nearest whole number.

Appendix B. Participating State Agencies

Alaska Department of Labor
Arkansas Department of Labor
California Department of Industrial Affairs
Kentucky Department of Labor
Maine Department of Labor
Montana Department of Labor and Industry
North Carolina Industrial Commission
Oregon Workers' Compensation Department
Tennessee Department of Labor
Vermont Department of Labor and Industry
Virginia Department of Labor and Industry
Washington Department of Labor and Industries

Appendix C. Survey Questionnaire

Bureau of Labor Statistics
Work Injury Report
Injuries in Logging

U.S. Department of Labor

The information collected on this form by the Bureau of Labor Statistics and the State Agencies cooperating in its statistical program will be held in confidence and will be used for statistical purposes only.

This report is authorized by law 29 U.S.C. 2. Your voluntary cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

Form Approved
O.M.B. No. 1220-0047
Approval Expires 9/30/82

State ☐☐ Case Number ☐☐☐☐☐☐☐☐☐ Date of Accident ☐☐ ☐☐ ☐☐

A. Which best describes where you were when the accident occurred? *(Check one.)*
1. ☐ Cutting site
2. ☐ Landing
3. ☐ Skid trail or between cutting site and landing
4. ☐ Employer-built road
5. ☐ County, State or interstate road
6. ☐ Other: *(Describe)* _____

B. Which best describes the type of terrain where the accident occurred? *(Check one.)*
1. ☐ Flat ground
2. ☐ Medium slope
3. ☐ Steep slope

C. Which best describes the ground cover? *(Check one.)*
1. ☐ Little or no brush
2. ☐ Moderate brush
3. ☐ Heavy brush
4. ☐ Swampy, marshy, boggy

D. What type of work were you doing when injured? *(Check one.)*
1. ☐ Brushing (clearing brush)
2. ☐ Bucking
3. ☐ Felling
4. ☐ Limbing
5. ☐ Bunching
6. ☐ Cable skidding (high-lead, slack-line, etc.)
7. ☐ Chasing
8. ☐ Choker setting
9. ☐ Hooking up a turn
10. ☐ Rigging
11. ☐ Tractor skidding
12. ☐ Hauling timber to mill
13. ☐ Loading/unloading timber
14. ☐ Constructing or maintaining roads or skid roads
15. ☐ Repairing or servicing equipment
16. ☐ Other logging activity: *(Describe)* _____

E. How often do you normally do this type of work? *(Check one.)*
1. ☐ First time you did this type of work
2. ☐ Daily or almost every day
3. ☐ Several times a month
4. ☐ About once a month
5. ☐ Seldom—less than once a month

F. Which best describes how your injury occurred? *(Check one.)*
1. ☐ Injured by a chainsaw
2. ☐ Chip, pine needle or other object went into eye(s)
3. ☐ Hit or crushed by limb, tree or log
4. ☐ Hit by cable, hook, chain or choker bell
5. ☐ Strained while lifting, using or moving tools, equipment or timber
6. ☐ Slipped, tripped or fell
7. ☐ Had mobile equipment accident (skidder or tractor rolled over, truck ran off road, etc.)
8. ☐ Other: *(Describe)* _____

IF YOU WERE INJURED BY A CHAINSAW, COMPLETE G, H, I AND J;

IF NOT, GO TO K.

If a chainsaw injured you:

G. Indicate why. *(Check all that apply.)*
1. ☐ Chainsaw kicked back
2. ☐ Using wrong size saw or length bar for cut being made
3. ☐ Fell on saw
4. ☐ Reached across saw
5. ☐ Hand slipped into chain of saw
6. ☐ Cutting method was wrong
7. ☐ Saw kept running after it was turned off (coasting)
8. ☐ Chain on saw broke
9. ☐ Saw was in bad condition or didn't work right
10. ☐ Didn't have tight grip on saw
11. ☐ Other: *(Describe)* _____

H. What were you doing with the saw when injured? *(Check one.)*
1. ☐ Getting ready to make a cut
2. ☐ Had just finished a cut
3. ☐ Cutting a tree, limb, etc.
4. ☐ Other: *(Describe)* _____

I. How big was the chainsaw engine? The size of the engine is measured in cubic inch displacement or cc(s). *(Check one.)*
1. ☐ Smaller than 3.0 cubic inches (less than 49 ccs)
2. ☐ 3.0 to 4.0 cubic inches (49 to 65 ccs)
3. ☐ 4.0 to 5.0 cubic inches (66 to 82 ccs)
4. ☐ 5.0 cubic inches or larger (more than 82 ccs)
5. ☐ Don't know

J. To your knowledge, what safety features did the saw have? *(Check all that apply.)*
1. ☐ Bar tip/nose guard
2. ☐ Chain brake
3. ☐ Deadman switch
4. ☐ Low-kickback chain
5. ☐ Low-kickback guide bar
6. ☐ Other kickback protection: *(Describe)* _____
7. ☐ Other: *(Describe)* _____
8. ☐ Not aware of any safety features

CONTINUE WITH K, BELOW

K. Did any natural conditions contribute to your accident? *(Check all that apply.)*
1. ☐ Twist, rot, knots, lean or other defects in tree
2. ☐ Snag or deadwood in tree
3. ☐ Springpole or wood under tension (limb in a bind, etc.)
4. ☐ Hidden wood on ground (wood hidden by ground cover, etc.)
5. ☐ Weather conditions at time of accident (raining, sleeting, windy, etc.)
6. ☐ Slippery conditions (mud, standing water, etc.)
7. ☐ Heavy brush or ground cover
8. ☐ Steep worksite
9. ☐ Other natural condition: *(Describe)* _____
10. ☐ No natural conditions contributed to accident

L. Check any other factors which you feel contributed to your accident. *(Check all that apply.)*
1. ☐ Co-worker's activity: *(Explain)* _____
2. ☐ Working too fast
3. ☐ Too noisy
4. ☐ Working when tired or fatigued
5. ☐ Working when under stress
6. ☐ Lifting, pushing or moving an object that was too heavy or bulky
7. ☐ Misjudged time or distance needed to avoid injury
8. ☐ Not paying full attention to work
9. ☐ Being unaware of hazards such as snags, springpoles, etc.
10. ☐ Cutting method was wrong
11. ☐ Other: *(Describe)* _____
12. ☐ No other factors contributed to injury

CONTINUE ON REVERSE SIDE

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M. What type of protective equipment were you *wearing* or *using* at the time of your accident? *(Check all that apply.)*

1. ☐ Boots with calked or corked soles
2. ☐ Dust mask
3. ☐ Ear plugs or other type of hearing protection
4. ☐ Glasses
5. ☐ Gloves
6. ☐ Goggles
7. ☐ Hard hat
8. ☐ Leg protection (chaps or knee pads)
9. ☐ Seat belt
10. ☐ Steel toes in boots
11. ☐ Other: *(Describe)* _____
12. ☐ Not wearing or using protective equipment

N. If you were injured while operating mobile equipment or a truck, to your knowledge, what safety features did it have? *(Check all that apply.)*

1. ☐ Not operating mobile equipment or truck
2. ☐ Cage or cover to protect against falling objects
3. ☐ Rollover protection
4. ☐ Seat belt
5. ☐ Other: *(Describe)* _____
6. ☐ Not aware of any safety features

O. How long had you been working that day before your accident occurred? *(Check one.)*

1. ☐ Less than 1 hour
2. ☐ 1 to 2 hours
3. ☐ 2 to 4 hours
4. ☐ 4 to 6 hours
5. ☐ 6 to 8 hours
6. ☐ 8 hours or more
7. ☐ Don't remember

P. How long had you been working without a break for rest or lunch? *(Check one.)*

1. ☐ Less than 1 hour
2. ☐ 1 to 2 hours
3. ☐ 2 to 4 hours
4. ☐ 4 hours or more
5. ☐ Don't remember

Q. Was the wood you were logging going to be used for pulpwood?

1. ☐ No
2. ☐ Yes
3. ☐ Don't know

R. What type of logging was being done at the worksite? *(Check one.)*

1. ☐ Clearcut
2. ☐ Selective cut—partial cut (selected trees)
3. ☐ Salvage logging
4. ☐ Don't know

S. How long had you been working in logging when injured? *(Check one.)*

1. ☐ Less than 1 month
2. ☐ 1 to 6 months
3. ☐ 6 months to 1 year
4. ☐ 1 to 5 years
5. ☐ 5 to 10 years
6. ☐ 10 years or more

T. How are you paid? *(Check one.)*

1. ☐ By the cord, load or other piecework basis: *(Describe)*

   _____
2. ☐ By the hour or week
3. ☐ Other: *(Describe)* _____

U. Who gave you safety training in logging? *(Check all that apply.)*

1. ☐ Never received any safety training
2. ☐ Supervisor or employer
3. ☐ Co-worker (other than supervisor)
4. ☐ Relative
5. ☐ Learned safety on your own
6. ☐ Other: *(Describe)* _____

V. How many workdays did you (or do you expect to) lose due to your injury? (NOTE: Do not count the day of injury, days on light duty work, normal days off or holidays.)

_____ Workdays

Check here _____ if you did not lose time beyond the day of injury.

W. Did your injury require you to be hospitalized overnight?

1. ☐ No
2. ☐ Yes

   If yes, how long were you (or do you expect to be) in the hospital?

   _____ Nights

In your own words, tell how the accident happened.

How could it have been prevented?

Work Injury Reports

Reports which may be purchased from the U.S. Department of Commerce, National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161:

- Survey of Ladder Accidents Resulting in Injuries
  NTIS Accession No. PB83 207985 (1978)
- Survey of Welding and Cutting Accidents Resulting in Injuries
  NTIS Accession No. PB83 208017 (1978)
- Survey of Scaffold Accidents Resulting in Injuries
  NTIS Accession No. PB83 208009 (1978)
- Survey of Power Saw Accidents Resulting in Injuries
  NTIS Accession No. PB83 207993 (1978)

Reports available from the Office of Occupational Safety and Health Statistics, U.S. Department of Labor, Room 4014, 601 D Street, N.W., Washington, D.C. 20212, or regional offices:

- Accidents Involving Eye Injuries
  Report 597 (1980)
- Accidents Involving Face Injuries
  Report 604 (1980)
- Accidents Involving Head Injuries
  Report 605 (1980)
- Accidents Involving Foot Injuries
  Report 626 (1981)

Reports which may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

- Injuries Related to Servicing Equipment
  Bulletin 2115 (1981)
- Back Injuries Associated with Lifting
  Bulletin 2144 (1982)
- Work-related Hand Injuries and Upper Extremity Amputations
  Bulletin 2160 (1982)
- Injuries in Oil and Gas Drilling and Services
  Bulletin 2179 (1983)
- Injuries Resulting From Falls From Elevations
  Bulletin 2195 (1984)
- Injuries in the Logging Industry
  Bulletin 2203 (1984)

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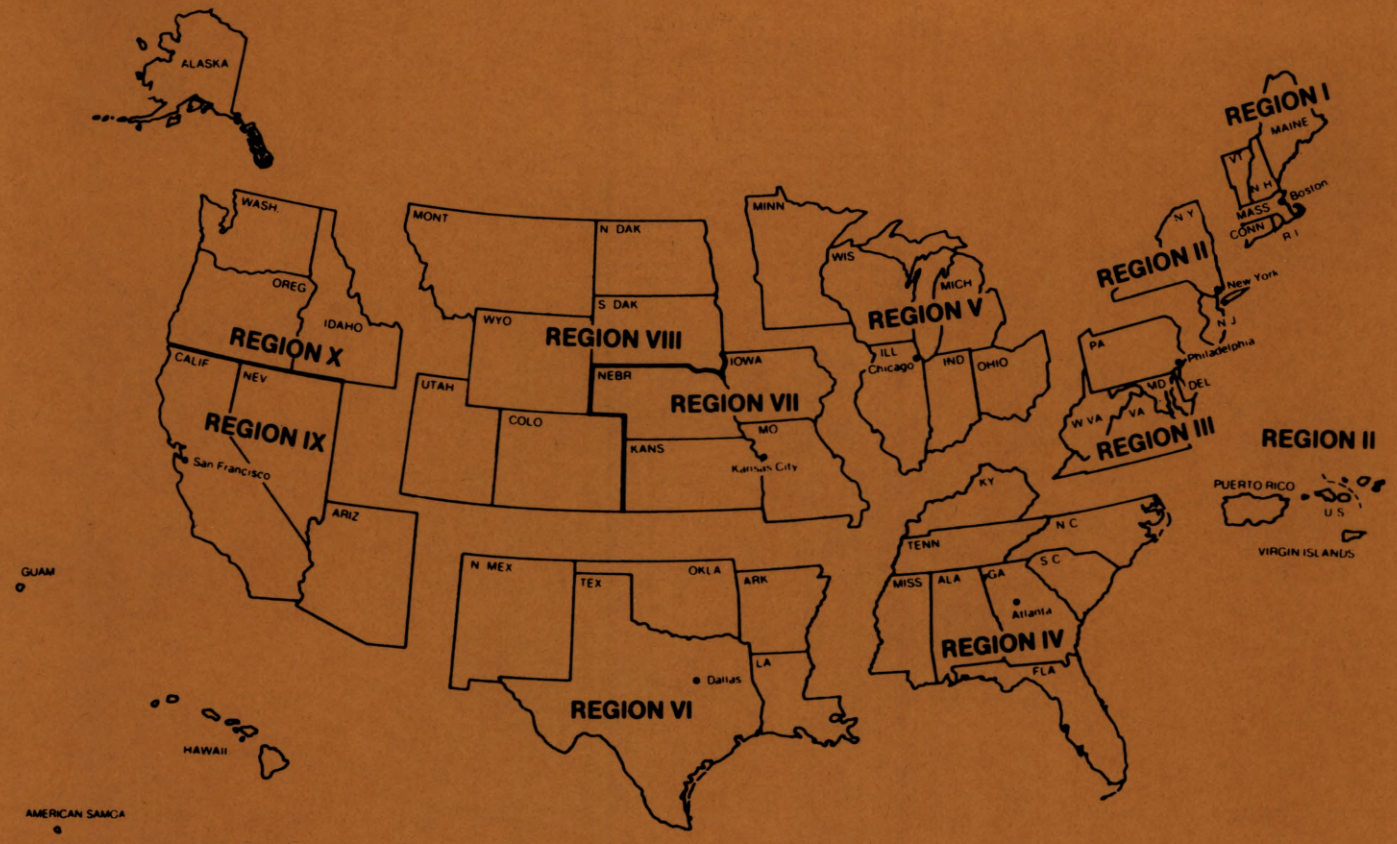

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