UNITED STATES DEPARTMENT OF LABOR
Frances Perkins, *Secretary*
BUREAU OF LABOR STATISTICS
Isador Lubin, *Commissioner*
in cooperation with
WORK PROJECTS ADMINISTRATION

✦

Salaries and Hours of Labor in Municipal Fire Departments

VOLUME VIII

Mountain Division Cities

✦

Prepared by the
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HERMAN B. BYER, Chief

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STATE, COUNTY, AND MUNICIPAL SURVEY

Jesse M. Hadley, Director

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,

Washington, D. C., September 25, 1940.

The SECRETARY OF LABOR:

I have the honor to transmit therewith the eighth of a series of nine reports on Salaries and Hours of Labor in Municipal Fire Departments. This report covers cities in the Mountain Division States. An explanation of the purposes of the survey was given in the preface to the first report on the New England cities.

ISADOR LUBIN, *Commissioner.*

Hon. FRANCES PERKINS,
Secretary of Labor.

Bulletin No. 684 (Vol. VIII) of the
United States Bureau of Labor Statistics

Salaries and Hours of Labor in Municipal Fire Departments, Mountain Division Cities [1]

Summary

On July 1, 1938, the fire departments [2] of 10 cities [3] in the Mountain Division employed 904 people whose annual salaries totaled about $1,803,500.

Ninety of every 100 employees were in the fire-fighting divisions and the rest were in the fire-prevention, apparatus, fire-alarm, and clerical divisions. Of the 90 in the fire-fighting divisions, 68 were privates, engineers, and drivers; 18 were captains, and lieutenants; and 4 were chiefs and their assistants. Twenty-four percent of all employees in these various divisions were officers or held supervisory positions.

The annual salaries of all employees in the 10 fire departments did not show the wide variations found in private industry. All the employees received between $1,200 and $4,200 a year and 88 percent of them received between $1,650 and $2,250 a year. This concentration was due to the outstanding characteristic of fire-department salaries, namely, the small differences between the salaries of officers or those holding supervisory positions and the rest of the employees. The supervisory employees, who constituted 24 percent of all employees, received 26 percent of the total salaries, a ratio of 1.0 to 1.1.

Of every $100 spent for salaries $89 went to the fire-fighting divisions. Of these $89, $65 went to privates, engineers, and drivers; $19 went to captains and lieutenants; and $5, to chiefs and their assistants.

[1] Analysis and presentation by Arthur Dadian. Editing and tabulation of data by Mahlon B. Buckman. Carol P. Brainerd, technical adviser.

[2] Relatively little general information is available on employment and salaries in city fire departments, in spite of the importance of their functions and the considerable number of their employees. A study on the "Salaries and Working Conditions of Fire Department Employees, 1934" was made by the Bureau of Labor Statistics and was published in the Monthly Labor Review of November 1935. In the present study the Bureau of Labor Statistics, in cooperation with the Work Projects Administration, has undertaken to compile this information, as of July 1, 1938, for cities in the United States having a population of 25,000 or more. This report for 10 Mountain Division cities is one of a series which is being issued by geographic divisions.

[3] This report covers only cities having a population of 25,000 or more, the United States census of population for 1930 being used to determine the size of the cities. See appendix for list of the States in the Mountain Division and the cities included in this bulletin.

In general the large cities paid higher salaries than the small cities. This was especially the case for the supervisory occupations which entailed greater responsibility in the large cities.

In addition to salaries the 10 fire departments gave their employees an average of 14 days of vacation with pay, sleeping quarters for men on night duty, and various items such as rubber boots and rubber coats.

The income of the uniformed force is affected by the promotion policy of the fire departments. In the present study data were obtained, regarding promotions, only for lower-grade privates. Nine of the 10 fire departments automatically promoted their lower-grade privates after a specified period of service.

The hours of employment did not show wide differences. Of every 10 employees 8 worked under the 2-shift, or 2-platoon, system of assignment which averaged 84 hours on duty per week; 1 worked under the 3-shift, or 3-platoon, system of assignment which averaged 49 hours on duty per week; and 1 had other hours which averaged 47 working hours per week.

These average weekly hours on duty were spread over a varying number of average weekly days on duty, depending upon the system of operation in the particular city. Sixty-four percent of the employees worked under the variation of the 2-platoon system which averaged 3½ days on duty per week. The rest of the employees were on duty between 5½ and 7 days per week.

On the basis of the 1930 population figures, the 10 cities had a fire-department employee for approximately every 800 inhabitants, at a per capita salary cost of about $2.50.

Annual Salaries

General Level of Salaries

The annual salaries in the fire departments of the 10 cities in the Mountain States were concentrated within a narrow range. Three percent of all employees received less than $1,650 a year; 16 percent received between $1,650 and $1,850; 72 percent, between $1,850 and $2,250; and 9 percent, $2,250 and over. The maximum salary in the Mountain Division was $4,200 a year. This concentration in earnings is largely explained by the relatively small differences in annual salaries found to exist among the various occupations within a fire department and even for the same occupation among the 10 fire departments.

The annual salaries were somewhat higher in the large than in the small cities. Thus 94 percent of the employees in the 2 cities having a population of 100,000 or more received an annual salary of $1,850 or more compared with 31 percent in the 1 city having a population of 50,000 and under 100,000; and 72 percent in the 7 cities having a population of 25,000 and under 50,000.

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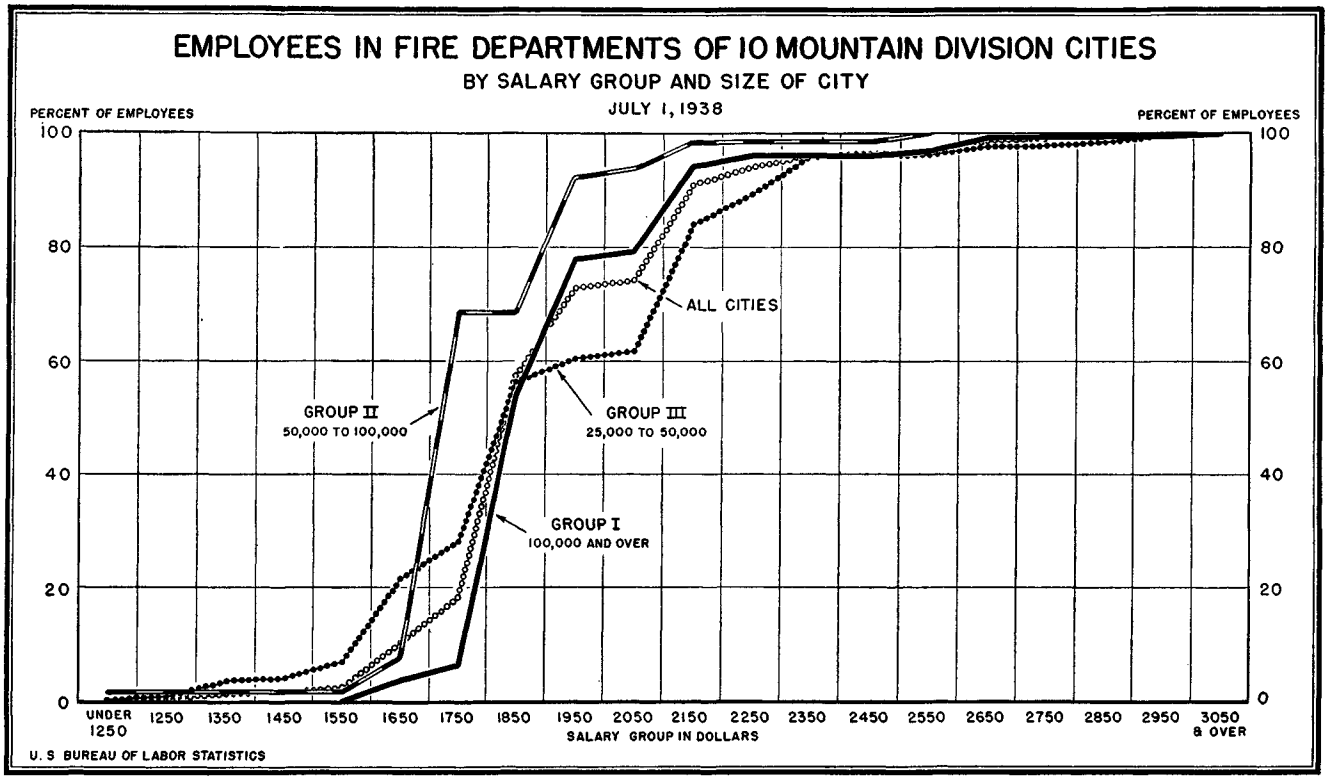

For the sake of brevity and comparability with other releases, the two largest cities mentioned above will be designated in this release as group I, the one medium-sized city as group II, and the seven smaller cities as group III.

TABLE 1.—*Distribution of employees in fire departments of 10 Mountain Division cities, by salary group and size of city, July 1, 1938*

Salary group	Number				Percent			
	All cities	City group [1]			All cities	City group [1]		
		I	II	III		I	II	III
All groups	[2] 904	524	64	316	100.0	100.0	100.0	100.0
Under $1,250	1	-------	1	-------	.1	-------	1.6	-------
$1,250 and under $1,350	3	-------	-------	3	.3	-------	-------	1.0
$1,350 and under $1,450	8	-------	-------	8	.9	-------	-------	2.5
$1,450 and under $1,550	2	-------	-------	2	.2	-------	-------	.6
$1,550 and under $1,650	9	-------	-------	9	1.0	-------	-------	2.9
$1,650 and under $1,750	69	19	4	46	7.6	3.6	6.2	14.5
$1,750 and under $1,850	74	14	39	21	8.2	2.7	60.9	6.6
$1,850 and under $1,950	353	249	15	89	39.1	47.5	23.4	28.2
$1,950 and under $2,050	138	125	-------	13	15.3	23.9	-------	4.1
$2,050 and under $2,150	13	8	1	4	1.4	1.5	1.6	1.3
$2,150 and under $2,250	151	78	3	70	16.7	14.9	4.7	22.2
$2,250 and under $2,350	27	10	-------	17	3.0	1.9	-------	5.4
$2,350 and under $2,450	21	-------	-------	21	2.3	-------	-------	6.6
$2,450 and under $2,550	1	-------	-------	1	.1	-------	-------	.3
$2,550 and under $2,650	6	5	1	-------	.7	.9	1.6	-------
$2,650 and under $2,750	16	12	-------	4	1.8	2.3	-------	1.3
$2,750 and under $2,850	2	1	-------	1	.2	.2	-------	.3
$2,850 and under $2,950	2	-------	-------	2	.2	-------	-------	.6
$2,950 and under $3,050	5	1	-------	4	.6	.2	-------	1.3
$3,050 and over	3	[3] 2	-------	[4] 1	.3	.4	-------	.3

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930

[2] Includes only regular, full-time employees.

[3] Includes 1 at $3,600, and 1 at $4,200.

[4] Receives $3,600.

Salaries in Selected Occupations

The annual salaries of the various occupations within a fire department did not show large differences. This was especially so in the lower ranking or nonsupervisory occupations which included about three-fourths of all the employees. The average annual salary of the 10 chiefs, the highest-paid officers, was only $1,162 higher than the average annual salary of first-grade privates. The differences were much less among the majority of the employees. The average annual salary of captains was only $214 more and that of lieutenants only $93 more than that of first-grade privates.

These differences in annual salaries of the various occupations within a fire department were greater in the large than in the small cities because in the large cities the supervisory occupations entailed greater responsibility. The difference between the average annual salary of chiefs and first-grade privates was $1,965 in group I cities compared with $780 in group II and $996 in group III cities. The

difference between the average annual salary of captains and first-grade privates, on the other hand, was $243 in group I cities, $120 in the group II city, and $220 in group III cities.

For the same occupation the large cities paid somewhat higher salaries than the small cities. The differences were more pronounced in the higher-ranking occupations. The average annual salary of chiefs in group I cities was $1,320 higher than that for the chief in the group II city and $977 higher than that for the chiefs in group III cities. The average annual salary of first-grade privates in group I cities, on the other hand, was $135 higher than that of first-grade privates in the group II city, and $8 higher than that of first-grade privates in group III cities.

The salary ranges shown in table 2 reveal the existence of many exceptions to the generalization that annual salaries are higher in the large than in the small cities. Two group III cities, Phoenix and Tucson, Ariz., for example, paid higher salaries to their privates than the other eight cities.

These exceptions show that factors other than size of the city affect the annual salaries in a given city. The wealth, or ability of the given city to pay high salaries, is always an important factor. It was primarily because of this factor that the differences by city groups were not so pronounced in the Mountain Division as they are in other geographic divisions.

TABLE 2.—*Distribution of fire-department employees in 10 Mountain Division cities, by selected occupations and salary group, July 1, 1938*

Salary group	All occupations				Chiefs				Assistant or deputy chiefs			
	All cities	City group [1]			All cities	City group [1]			All cities	City group [1]		
		I	II	III		I	II	III		I	II	III
Number of cities reporting	10	2	1	7	10	2	1	7	9	2	1	6
Total number of employees [4]	904	524	64	316	10	2	1	7	11	2	2	7
Under $1,250	1		1									
$1,250 and under $1,350	3			3								
$1,350 and under $1,450	8			8								
$1,450 and under $1,550	2			2								
$1,550 and under $1,650	9			9								
$1,650 and under $1,750	69	19	4	46								
$1,750 and under $1,850	74	14	39	21								
$1,850 and under $1,950	353	249	15	89								
$1,950 and under $2,050	138	125		13								
$2,050 and under $2,150	13	8	1	4								
$2,150 and under $2,250	151	78	3	70					4		2	2
$2,250 and under $2,350	27	10		17								
$2,350 and under $2,450	21			21	1			1	3			3
$2,450 and under $2,550	1			1					1			1
$2,550 and under $2,650	6	5	1		1		1					
$2,650 and under $2,750	16	12		4	1			1				
$2,750 and under $2,850	2	1		1					1	1		
$2,850 and under $2,950	2			2	2			2				
$2,950 and under $3,050	5	1		4	2			2	2	1		1
$3,050 and over	3	2		1	3	[5] 2		[6] 1				
Average annual salary	$1,995	$2,009	$1,846	$2,002	$3,084	$3,900	$2,580	$2,923	$2,473	$2,880	$2,160	$2,446

See footnotes at end of table.

TABLE 2.—*Distribution of fire-department employees in 10 Mountain Division cities, by selected occupations and salary group, July 1, 1938*—Continued

Salary group	Assistant deputy chiefs			Battalion chiefs: City group [1]	Captains				Lieutenants		
	All cities [2]	City group [1]			All cities	City group [1]			All cities [2]	City group [1]	
		I	III	I		I	II	III		I	III
Number of cities reporting	2	1	1	1	10	2	1	7	5	2	3
Total number of employees [4]	11	10	1	2	123	61	14	48	40	26	14
Under $1,250											
$1,250 and under $1,350											
$1,350 and under $1,450											
$1,450 and under $1,550											
$1,550 and under $1,650											
$1,650 and under $1,750									7		7
$1,750 and under $1,850					11			11			
$1,850 and under $1,950					15		14	1	3		3
$1,950 and under $2,050					8			8	16	12	4
$2,050 and under $2,150					4			4			
$2,150 and under $2,250					52	52			14	14	
$2,250 and under $2,350					17	9		8			
$2,350 and under $2,450					16			16			
$2,450 and under $2,550											
$2,550 and under $2,650				2							
$2,650 and under $2,750	10	10									
$2,750 and under $2,850	1		1								
$2,850 and under $2,950											
$2,950 and under $3,050											
$3,050 and over											
Average annual salary	$2,713	$2,700	$2,844	$2,580	$2,136	$2,178	$1,920	$2,147	$2,015	$2,105	$1,847

Salary group	Engineers, fire engine			Drivers: City group [1]	Privates, all grades				Auto mechanics			
	All cities [2]	City group [1]			All cities	City group [1]			All cities	City group [1]		
		I	III	III		I	II	III		I	II	III
Number of cities reporting	4	1	3	3	10	2	1	7	4	1	1	2
Total number of employees [4]	65	35	30	21	529	325	41	163	12	8	1	3
Under $1,250												
$1,250 and under $1,350					3			3				
$1,350 and under $1,450					8			8				
$1,450 and under $1,550					2			2				
$1,550 and under $1,650					9			9				
$1,650 and under $1,750	8		8	4	50	19	4	27				
$1,750 and under $1,850					59	14	37	8	1		1	
$1,850 and under $1,950	6		6	3	290	221		69				
$1,950 and under $2,050	35	35			72	71		1				
$2,050 and under $2,150									8	8		
$2,150 and under $2,250	16		16	14	36			36				
$2,250 and under $2,350									2			2
$2,350 and under $2,450												
$2,450 and under $2,550												
$2,550 and under $2,650												
$2,650 and under $2,750												
$2,750 and under $2,850												
$2,850 and under $2,950												
$2,950 and under $3,050									1			1
$3,050 and over												
Average annual salary	$2,019	$2,040	$1,994	$2,021	$1,893	$1,914	$1,791	$1,874	$2,179	$2,100	$1,800	$2,516

See footnotes at end of table.

TABLE 2.—*Distribution of fire-department employees in 10 Mountain Division cities, by selected occupations and salary group, July 1, 1938*—Continued

Salary group	Fire alarm operators			Electricians			Linemen			Others			
	All cities [2]	City group [1]		All cities [2]	City group [1]		All cities [3]	City group [1]		All cities	City group		
		I	III		I	III		I	II		I	II	III
Number of cities reporting	4	2	2	2	1	1	2	1	1	6	2	1	3
Total number of employees [4]	20	11	9	2	1	1	12	11	1	46	30	4	12
Under $1,250										1		1	
$1,250 and under $1,350													
$1,350 and under $1,450													
$1,450 and under $1,550													
$1,550 and under $1,650													
$1,650 and under $1,750													
$1,750 and under $1,850							1		1	2			2
$1,850 and under $1,950	10	7	3				11	11		15	10	1	4
$1,950 and under $2,050	4	4		1	1					2	2		
$2,050 and under $2,150										1		1	
$2,150 and under $2,250										15	12	1	2
$2,250 and under $2,350	6		6							2	1		1
$2,350 and under $2,450				1		1							
$2,450 and under $2,550													
$2,550 and under $2,650										3	3		
$2,650 and under $2,750										5	2		3
$2,750 and under $2,850													
$2,850 and under $2,950													
$2,950 and under $3,050													
$3,050 and over													
Average annual salary	$2,059	$1,942	$2,274	$2,190	$1,980	$2,400	$1,910	$1,920	$1,800	(7)	(7)	(7)	(7)

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.
[2] No persons in this occupation in the city falling in group II.
[3] No persons in this occupation in the cities of group III.
[4] Includes only regular, full-time employees.
[5] Includes 1 at $3,600 and 1 at $4,200.
[6] Receives $3,600.
[7] No average computed because such a heterogeneous group of occupations.

Salaries of Privates

Privates constituted 6 out of every 10 employees and received $5.50 out of every $10 spent in salaries in the fire departments of the 10 Mountain Division cities. These proportions are smaller than in most of the other geographic divisions in the United States, because small cities prevail to a greater extent in the Mountain States. Furthermore, in small cities supervisory employees have fewer people under their supervision and consequently they constitute a larger proportion of all employees than is found to be the case in the large cities.

The annual salaries of privates did not show wide variations. Four percent of the number reporting received less than $1,650 a year; approximately 76 percent received between $1,650 and $1,950; and about 20 percent between $1,950 and $2,250. Although the

annual salaries of privates were somewhat higher in the large than in the small cities, the differences by city groups were not clear cut because of the small number of cities on which to base conclusions and the relatively high salaries in some of the group III cities. The actual average annual salaries were $1,914 for group I cities compared with $1,791 for the group II city and $1,874 for the group III cities.

Eighty-five percent of all privates were first-grade privates and the rest were mostly second- and third-grade privates. It may also be noted that because of their greater number of privates, the large cities maintained a greater number of grades than the small cities.

TABLE 3.—*Distribution of privates in fire departments of 10 Mountain Division cities, by salary group and grade, July 1, 1938*

Salary group	All grades							
	Number				Percent			
	All cities	City group [1]			All cities	City group [1]		
		I	II	III		I	II	III
All groups	529	325	41	163	100.0	100.0	100.0	100.0
$1,250 and under $1,350	3			3	.6			1.8
$1,350 and under $1,450	8			8	1.5			4.9
$1,450 and under $1,550	2			2	.4			1.2
$1,550 and under $1,650	9			9	1.7			5.5
$1,650 and under $1,750	50	19	4	27	9.4	5.8	9.8	16.6
$1,750 and under $1,850	59	14	37	8	11.2	4.3	90.2	4.9
$1,850 and under $1,950	290	221		69	54.8	68.0		42.4
$1,950 and under $2,050	72	71		1	13.6	21.9		.6
$2,050 and under $2,150								
$2,150 and under $2,250	36			36	6.8			22.1

Salary group	Number of privates in specified grade							
	First				Second			
	All cities	City group [1]			All cities	City group [1]		
		I	II	III		I	II	III
All groups	450	276	37	137	29	16	2	11
$1,250 and under $1,350								
$1,350 and under $1,450					8			8
$1,450 and under $1,550								
$1,550 and under $1,650	3			3	1			1
$1,650 and under $1,750	27			27	2		2	
$1,750 and under $1,850	45		37	8				
$1,850 and under $1,950	268	205		63	17	16		1
$1,950 and under $2,050	71	71			1			1
$2,050 and under $2,150								
$2,150 and under $2,250	36			36				

See footnote at end of table.

TABLE 3.—*Distribution of privates in fire departments of 10 Mountain Division cities, by salary group and grade, July 1, 1938*—Continued

Salary group	Number of privates in specified grade—Continued											
	Third				Fourth				Fifth			
	All cities	City group [1]			All cities	City group [1]			All cities	City group [1]		
		I	II	III		I	II	III		I	II	III
All groups	30	18	2	10	15	15			5			5
$1,250 and under $1,350	3			3								
$1,350 and under $1,450												
$1,450 and under $1,550	2			2								
$1,550 and under $1,650									5			5
$1,650 and under $1,750	6	4	2		15	15						
$1,750 and under $1,850	14	14										
$1,850 and under $1,950	5			5								
$1,950 and under $2,050												
$2,050 and under $2,150												
$2,150 and under $2,250												

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

Hours and Working Conditions

Average Hours and Days on Duty Per Week

A large majority of the employees in a fire department—all of the uniformed men except a few officers—work under a platoon system of assignment. The rest of the employees are either on continuous duty or have the working hours prevailing in the other city offices.

Under the platoon system, the firemen are so assigned to duty as to insure that the city is equally protected at all times. The platoon arrangement is analogous to the shift system in industries operating 24 hours a day. There are 3 different types of platoon systems: (1) Single-platoon system, (2) 2-platoon system, and (3) 3-platoon system.

Under the single-platoon system each fireman stays on duty continuously for 2 or more days, depending upon the variation of the system in use in the particular locality, and then has a day off. The off days are so arranged that the fire department is equally staffed at all hours.

The length of the period on duty between off days determines the average weekly number of hours and days on duty under the single-platoon system. The shorter the period on duty the shorter the average weekly hours and days on duty. The shortest average hours and days on duty noted under the single-platoon system is the one with 2 days on and the third day off. It averages 112 hours or 4.7 days on duty per week. In no instance, however, does the single-platoon system ever reach 168 hours or 7 days of duty per week,

because under all variations of the single-platoon system the firemen are given a day off duty at regular intervals.

The single-platoon system used to be the most prevalent system. Now a majority of the cities operate under the 2-platoon system.

Under the 2-platoon system the firemen are divided into two groups and work in two tours. While one group is at work, the other is off duty. The firemen, however, do not work on the same tour constantly but change from day to night duty at regular intervals. Usually, before shifting from day to night duty, or vice versa, the men on duty stay on for 24 hours while those off duty remain off for 24 hours. Thus, the full day off duty is balanced by a full day on duty every other tour. Hence, even with a full day off every other tour, each group stays on duty an average of 12 hours a day, or 84 hours a week. In some fire departments, however, the firemen are given additional time off duty which is not compensated for by a like period on duty. In those fire departments the average hours on duty per week is less than 84, usually 72.

The interval of time between the change of tours, or the frequency of the tours, is not the same in all cities operating under the 2-platoon system of assignment. In some cities shifts occur as frequently as every 24 hours, whereas in others they occur as seldom as every 30 days. The frequency of the shifts does not affect the average hours on duty per week under the 2-platoon system because under all variations of this system the firemen average 12 hours a day, except in cities that give additional time off duty. The frequency of the shifts under the 2-platoon system, however, does affect and determine the average number of days on duty per week in the given fire department. The more frequent shifts result in a fewer number of average days on duty per week. The tour with 24 hours on and 24 hours off averages the least number of days on duty per week, 3½ days, and the tour with no time off duty averages the most, 7 days. Thus, the different cities operating under the 2-platoon system and having the same number of average hours on duty per week, 84 hours if no additional time off duty is given, may have average days on duty per week between 3½ and 7 days.

The present trend is away from the 2-platoon system to the 3-platoon system, with shorter hours and days on duty per week. Under the 3-platoon system the 24-hour day is divided into 3 tours. Thus, 56 is the maximum average hours and 7 the maximum days on duty per week under the 3-platoon system. In cities where the firemen are given a day or a fraction of a day holiday each week, the hours on duty per week are less than 56, and the days less than 7. In fire departments that do not give time off duty, the firemen are usually divided into 3 groups and each group works 8 hours a day. In fire departments that do give time off duty, the 3 tours are divided among more

than 3 groups of firemen so as to fill the gap left by those having the time off duty.

In a very few fire departments a small number of the officers work under a different platoon system than the rest of the firemen, which fact results in a combination of two different platoon systems in the same fire department. However, such cases are rare. Almost every fire department operates wholly under one of the three platoon systems (single-platoon, 2-platoon, or 3-platoon system).

Almost every fire department has a small number of employees not included under the platoon system. These employees fall into two groups—those on "continuous" duty, and "other." In most of the fire departments the chief and a few of his immediate assistants, including those in charge of the various divisions within the fire department, such as the superintendent of fire-alarm division, are subject to call any moment and are therefore considered to be on duty continuously. The "other" group includes mostly nonuniformed employees such as clerks and maintenance men who are not required to fight fires. These employees usually have the working hours prevalent in private industry or the other departments of the city government.

Of the fire departments in the 10 Mountain Division cities covered by this study, 8 operated under the 2-platoon system of assignment with an average of 84 hours on duty per week, and 2 under the 3-platoon system with a holiday every eighth day, which system averaged 49 hours on duty per week. None of the 10 fire departments operated under the single platoon system. The 2-platoon system included almost 80 percent and the 3-platoon system included 9 percent of all employees in the 10 fire departments. Of the remaining 11 percent, 2 percent, made up wholly of chiefs, assistant chiefs, and assistant deputy chiefs, were on continuous duty. The rest, 9 percent, had working hours similar to those prevailing in the other city departments, an average of 47 hours and 5½ days per week. All but 4 of the 83 employees having "other" hours were outside the fire-fighting divisions.[4]

Usually the hours on duty are shorter in the large than in the small cities. But because of the 3-platoon system in two small cities, the average hours on duty per week were shorter in group III than in group I or group II cities.

The average days on duty ranged between 3½ and 7 days per week. Of the 80 percent of all employees working under the 2-platoon system, 64 percent were under the variation with 24 hours on and 24 hours off, which averaged 3½ days per week. Of the remaining 16 percent of the employees under the 2-platoon system, 12 percent were on duty

[4] See appendix table C.

an average of 6½ days per week and 4 percent were on duty an average of 7 days per week. With a holiday every eighth day the 3-platoon system, which included 9 percent of all employees, averaged little over 6 days per week. Two percent of the employees were on continuous duty and consequently were on duty 7 days a week. The 9 percent under "other" worked an average of little over 5½ days a week.

The average number of days on duty per week were shorter in the large than in the small cities, because both the cities in group I and the one city in group II, operated under the variation of the 2-platoon system which averaged 3½ days per week.

TABLE 4.—*Average hours and days on duty per week in fire departments of 10 Mountain Division cities, July 1, 1938*

System of operation	Average hours on duty per week	Average days on duty per week	Number of cities reporting				Number of employees				Percent of employees			
			All cities	City group [1]			All cities	City group [1]			All cities	City group [1]		
				I	II	III		I	II	III		I	II	III
All systems							[2] 904	524	64	316	100.0	100.0	100.0	100.0
Continuous duty	168	7.0	7	1	1	5	21	12	3	6	2.3	2.3	4.7	1.9
2-platoon—Regular [3]			8	2	1	5	717	457	56	204	79.3	87.2	87.5	64.5
On 24 hours, off 24 hours	84	3.5	5	2	1	2	576	457	56	63	63.7	87.2	87.5	19.9
Shift 7th day	84	6.5	2			2	105			105	11.6			33.2
Shift each week	84	7.0	1			1	36			36	4.0			11.4
3-platoon: [4] 8-hour tours, off every 8th day	49	6.1	2			2	83			83	9.2			26.3
Other [5]	46.6	5.6	8	2	1	5	83	55	5	23	9.2	10.5	7.8	7.3

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000. Based on U. S. Census of Population for 1930.

[2] Includes only regular, full-time employees.

[3] Under each variation of the regular 2-platoon system the employees work in 2 groups, 1 group is on duty while the other is off duty. Over a period of days, therefore, each group is on duty as many hours as the other, or 12 hours a day and 84 hours a week. Each variation of the 2-platoon system, however, spreads these 84 hours into different numbers of days on duty per week. The average number of days on duty per week for each variation is arrived at by dividing the number of days on duty per year by 52.143.

[4] The average number of hours and days on duty per week is arrived at by dividing the total number of man-hours or man-days on duty per year by 52.143.

[5] The average number of working hours and days on duty per week is arrived at by dividing the total number of weekly man-hours and man-days by the total number of employees under "other."

Perquisites Supplied to Firemen

The fire departments of all the 10 cities supplied their firemen with specified lists of items without charge. All the cities furnished sleeping quarters for men on night duty, and 4 of them supplied the necessary beds, bedding, linen, and laundry. Only 1 city furnished uniforms.

TABLE 5.—*Perquisites supplied to firemen in 10 Mountain Division cities, July 1, 1938*

City group [1]	Number of cities	Number of cities supplying—							
		Sleeping quarters for men on night duty	Beds, bedding, linen, laundry	Helmets	Rubber coats	Rubber boots	Uniforms	Cloth and trimmings for uniform	Minor items
All cities	10	10	4	5	5	2	1	2	5
Group I	2	2	1	1	1	------	------	1	1
Group II	1	1	1	------	------	------	------	------	1
Group III	7	7	2	4	4	2	1	1	3

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000, and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

Vacations With Pay

All but 24 of the 904 employees in the 10 fire departments received vacations with pay. Vacation periods ranged between 7 and 16 days a year but periods of 14 and 15 days predominated and included 93 percent of all employees.

The vacation periods were somewhat longer in the large than in the small cities. The average vacation period in group I cities was 14.3 days compared with 13.8 and 13.7 days, respectively, in group II and group III cities.

TABLE 6.—*Number of employees receiving specified vacation with pay in fire departments of 10 Mountain Division cities, July 1, 1938*

City group [1]	Number of cities	Total number of employees	Number of employees having—						
			No vacation	7 days	8 days	11 days	14 days	15 days	16 days
All cities	10	[2] 904	24	2	31	1	255	589	2
Group I	2	524	15	------	------	------	121	388	------
Group II	1	64	------	2	------	------	62	------	------
Group III	7	316	9	------	31	1	72	201	2

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

[2] Includes only regular, full-time employees.

Promotions of Lower-Grade Privates

All of the 10 fire departments had definite promotion policies for their lower-grade privates. Of the 10 fire departments 8 automatically promoted their lower-grade privates after 1 year's service and 1 after 6 months' probation. One group III city promoted its lower-grade privates after civil service examination.

The data on promotions did not show any characteristic differences resulting from the size of the cities.

TABLE 7.—*Promotion of lower-grade privates in fire departments of 10 Mountain Division cities, July 1, 1938*

City group [1]	Number of cities	Total number of privates	Number of cities with promotion after—		
			6 months	1 year	Civil service examination
All cities	10	529	1	8	1
Group I	2	325		2	
Group II	1	41		1	
Group III	7	163	1	5	1

[1] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

Percentage Distribution of Employees and Salaries

All Employees

In the fire departments of the 10 Mountain Division cities 90 out of every 100 employees were in the fire-fighting divisions. The rest were in the fire-prevention, apparatus, fire-alarm, and clerical divisions. Of the 90 in the fire-fighting divisions, 4 were chiefs, chief's assistants, and battalion chiefs, 18 were captains and lieutenants, and 68 were engineers, drivers, and privates.

The majority of the fire departments do not distinguish between privates, drivers, and engineers but classify them all as privates. Among the fire departments of the 10 cities covered by this study, for example, 4 fire departments reported engineers and 3 reported drivers. For purposes of comparison with other geographic divisions, therefore, it is desirable to combine the numbers of privates, drivers, and engineers. Usually these 3 occupations combined constitute three-fourths of the fire-department employees. In the fire departments of the 10 Mountain Division cities these 3 occupations constituted less than three-fourths, 68 percent, of all employees. This difference was due to the fact that in the small cities officers, men holding high-ranking positions, have a relatively smaller number of people working under their supervision. Consequently, officers constitute a larger proportion and nonofficers, such as privates and drivers, constitute a smaller proportion of all employees in the small than in the large cities. In some large cities, supervisory employees constitute as little as 12 percent of all employees of the fire department. In comparison with this, in the 10 Mountain Division cities supervisory employees constituted 24 percent of all employees.

For purposes of comparison the data on captains and lieutenants also should be combined. Usually fire departments have from one and

one-half times to twice as many captains as lieutenants. However, some cities have more lieutenants than captains and some cities, on the other hand, have no lieutenants at all. In the 10 fire departments captains and lieutenants constituted 18 percent of all employees. This percentage is higher than the percentage for these 2 occupations in most other geographic divisions because of the small size of the cities in the Mountain Division.

Officers, or those holding high-ranking occupations, constituted a smaller percentage of the total number of fire-department employees in the large than in the small cities. Chiefs, for example, formed 0.4 percent of all employees in group I cities compared with 1.6 percent in the group II city, and 2.2 percent in group III cities.

Of every $100 spent in salaries in the 10 fire departments, $89 went to the fire-fighting divisions and the rest to the fire-prevention, apparatus, fire-alarm, and clerical divisions. Of the $89 spent in salaries for the fire-fighting divisions, $4 went to chiefs, chiefs' assistants, and battalion chiefs, $19 to captains and lieutenants, and $66 to engineers, drivers, and privates.

In the large cities the officers, or those holding supervisory positions, received a smaller proportion of the total salaries than in the small cities. Chiefs, for example, received 0.7 percent of total salaries in group I cities, compared with 2.2 percent in the group II city, and 3.2 percent in group III cities.

The percentage distributions of employees and of salaries by divisions within a fire department were almost identical. The employees in the fire-fighting divisions, for example, constituted 90 percent of all employees and received 90 percent of the total salaries. A similar situation prevailed in fire-prevention, apparatus, fire-alarm, and clerical divisions.

Within each division, however, there were characteristic variations resulting from the fact that officers received a larger share of the total salaries in proportion to their numbers and nonofficers received a smaller share of the salaries in proportion to their numbers. Chiefs, for example, constituted 1.1 percent of all employees but received 1.7 percent of the total salaries. Privates, on the other hand, constituted 59 percent of all employees and received 56 percent of the total salaries.

These characteristic differences among the occupations within a division were more pronounced in the large than in the small cities because in the large cities the officers received a relatively greater proportion of the total salaries. Chiefs in group I cities constituted 0.4 percent of all employees and received 0.7 percent of the total salaries, a ratio of 1 to 1.8. For the same occupation the ratio was 1 to 1.4 in the group II city and 1 to 1.5 in the group III cities.

TABLE 8.—*Percentage distributions of employees and salaries in specified divisions in fire departments of 10 Mountain Region cities, July 1, 1938*

Division [1] and occupation	Percent of employees				Percent of salaries			
	All cities	City group [2]			All cities	City group [2]		
		I	II	III		I	II	III
All divisions	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fire fighting	89.8	88.4	90.6	92.1	89.3	88.0	90.7	91.2
Chiefs	1.1	.4	1.6	2.2	1.7	.7	2.2	3.2
Assistant or deputy chiefs	1.2	.4	3.1	2.2	1.5	.5	3.7	2.7
Assistant deputy chiefs	1.2	1.9	-------	.3	1.7	2.6	-------	.5
Battalion chiefs	.2	.4	-------	-------	.3	.5	-------	-------
Captains	13.6	11.6	21.9	15.2	14.5	12.6	22.7	16.3
Lieutenants	4.4	5.0	-------	4.4	4.5	5.2	-------	4.1
Engineers, fire engine	7.2	6.7	-------	9.5	7.3	6.8	-------	9.5
Drivers	2.3	-------	-------	6.7	2.3	-------	-------	6.7
Privates, all grades	58.6	62.0	64.0	51.6	55.5	59.1	62.1	48.2
Fire prevention	1.5	1.7	-------	1.3	1.5	1.8	-------	1.4
Apparatus	3.3	3.8	6.3	1.9	3.6	4.2	5.9	2.2
Fire alarm	4.4	5.0	3.1	3.8	4.6	4.9	3.4	4.3
Clerical	1.0	1.1	-------	.9	1.0	1.1	-------	.9

[1] All fire departments assign men from the fire-fighting division to the other divisions and carry these assigned men on the fire-fighting division list. This is done to provide the fire department with a reserve for cases of emergency. As a result of this method of assignment, the fire-fighting division is always shown to be larger than it actually is on a routine day. Some other factors are also responsible for the small size of the non-fire-fighting divisions. In some cities, for example, the maintenance work is let to private contractors, part of the fire-prevention work is done by the building inspector's office, and the fire-alarm work is done by the local telephone company or by a separate city bureau.

[2] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000, and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

Supervisory Employees

An important fact revealed by this study was the relatively small difference between the salaries of supervisory and nonsupervisory employees in fire departments. In the fire departments of the 10 Mountain Division cities supervisory employees constituted 24 percent of all employees and received 26 percent of the total salaries. It was this small difference which was mostly responsible for the concentration of annual salaries within a narrow range. As shown in table 10 the ratio of salaries to employees was even smaller in the small than in the large cities.

Supervisory employees constituted almost one-fourth of all employees in the 10 fire departments. As was pointed out before, this figure represents a rather high proportion of supervisory employees and is due to the fact that almost all of the 10 cities covered by this release were relatively small in size. In the small cities the officers supervise a relatively smaller number of men and thus constitute a relatively larger proportion of the total number of employees. This difference in the proportion of supervisory employees between large and small cities, however, is compensated for by the fact that in the small cities supervisory employees have more varied duties. Officers

in a small city often do their own clerical work and have part-time duties in divisions other than the one to which they are directly assigned.

TABLE 9.—*Number and salaries of supervisory employees* [1] *as percent of total fire-department employees and total salaries, in 10 Mountain Division cities, July 1, 1938*

Item	All cities	City group [2]		
		I	II	III
Supervisory employees as percentage of all employees	23.6	21.0	29.7	26.6
Supervisory salaries as percentage of total salaries	26.3	23.8	32.2	29.3
Ratio of salaries to employees	1.11	1.13	1.08	1.10

[1] Supervisory employees are those employees in all divisions who have others working under them. The group includes the chiefs, assistant chiefs, assistant deputy chiefs, battalion chiefs, captains, lieutenants, marshals or wardens, superintendents, chief fire alarm operators, assistants to these officers who also supervise the activities of others, and others who direct other employees.

[2] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

Distribution of Employees and Per Capita Salary Cost of Fire Protection

The 2 group I cities had a fire department employee for every 817 inhabitants; the 1 group II city, for every 783 inhabitants; and the 7 group III cities, for every 788 inhabitants. The per capita salary cost of fire protection was $2.46 in group I cities, $2.36 in the group II city, and $2.54 in the group III cities.

These figures do not show any characteristic differences by city groups. Usually the large cities in a geographic division have a relatively greater number of employees than the small cities. Because of this fact and also because of the fact that in general the large cities pay higher salaries than the small cities, the per capita cost of fire department salaries is usually higher in the large than in the small cities. These characteristic differences by city group did not prevail among the fire departments of the 10 Mountain Division cities because there is no appreciable difference between the economic status of the large and most of the small cities within the division.

Appendix

The listing of cities of 25,000 or more in the Mountain Division with their populations, ratios of employees to population, and per capita costs is shown in table A. The Mountain Division includes the States of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. It will be noted that no data are given, in this study, for the States of Idaho, Nevada, and Wyoming; the reason for this is that the Census of Population for 1930 showed no cities in those States having a population of as much as 25,000.

TABLE A.—*Fire department employees and salary costs in relation to population in cities with a population of 25,000*[1] *or more in Mountain States, July 1, 1938*

City	Population	Employees per 10,000	Per capita salary cost
All cities	727,281	12	$2.48
Group I—cities of 100,000 and over	428,128	12	2.46
Denver, Colo	287,861	14	2.79
Salt Lake City, Utah	140,267	9	1.78
Group II—cities of 50,000 to 100,000: Pueblo, Colo	50,096	13	2.36
Group III—cities of 25,000 to 50,000	249,057	13	2.54
Albuquerque, N. Mex	26,570	14	2.30
Butte, Mont	39,532	11	2.26
Colorado Springs, Colo	33,237	13	2.27
Great Falls, Mont	28,822	15	3.00
Ogden, Utah	40,272	7	1.32
Phoenix, Ariz	48,118	18	3.95
Tucson, Ariz	32,506	11	2.37

[1] Based on United States census of population for 1930.

TABLE B.—*Distribution of salaries and employees in fire departments of each of 10 Mountain Division cities with population of 25,000 or over,*[1] *by occupations, July 1, 1938*

Division and occupation	Group I: Cities with population of 100,000 or over					Group II: Cities with population of 50,000 and under 100,000		Group III: Cities with population of 25,000 and under 50,000		
	Total Employees	Colorado		Utah		Colorado		Total employees	Arizona	
		Denver		Salt Lake City		Pueblo			Phoenix	
		Number	Salary rate	Number	Salary rate	Number	Salary rate		Number	Salary rate
All occupations[2]	524	403		121		64		316	85	
Fire fighting:										
Chiefs	2	1	$4,200	1	$3,600	1	$2,580	7	1	$3,600
Assistant or deputy chiefs	2	1	3,000	1	2,760	2	2,160	7	1	3,024
Assistant deputy chiefs	10	10	2,700					1	1	2,844
Battalion or district chiefs	2			2	2,580					
Captains	61	52	2,160	9	2,280	14	1,920	48	16	2,424
Lieutenants	26	12	2,040	14	2,160			14		
Engineers, fire engine	35	35	2,040					30	16	2,214
Drivers								21		
Privates:										
1st grade	276	205	1,920	71	1,980	37	1,800	137	27	2,160
2d grade	16	14	1,860	2	1,860	2	1,740	11	1	2,040
3rd grade	18	14	1,800	4	1,740	2	1,680	10	4	1,920
4th grade	15	15	1,740							
5th grade								5	5	1,575
Fire prevention:										
Marshals or wardens	1	1	2,700			(3)		2	1	2,688
Assistant marshals or wardens	1	1	2,040			(3)				
Inspectors	7	6	1,920	1	2,280	(3)		2	1	2,160
Apparatus:										
Superintendents of machinery	2	1	2,700	1	2,640	1	2,064	3	1	2,688
Machinists	9	9	2,160							
Auto mechanics	8			8	2,100	1	1,800	3	2	2,274
General mechanics—carpenters	1	1	2,040			1	1,920			
Miscellaneous—laborers						1	1,200			
Fire alarm:										
Superintendents	2	1	2,580	1	2,640	1	2,160	2	1	2,688
Assistant superintendents	1	1	2,160							
Fire alarm operators:										
Operators, fire alarm	11	7	1,920	4	1,980			6	6	2,274
Operators, telephone								3		
Electricians	1			1	1,980			1		
Linemen	11	11	1,920			1	1,800			
Clerical:										
Secretaries	1			1	2,160	(3)		3	1	2,220
Assistant secretaries	1	1	2,160							
Clerks	3	3	1,920							
Stenographers	1	1	1,860							

[1] Based on U. S. Census of Population for 1930.
[2] Totals include regular, full-time employees, but do not include part-time employees, call men, or volunteers.
[3] Men from uniformed force assigned to this work.

TABLE B.—*Distribution of salaries and employees in fire departments of each of 10 Mountain Division cities with population of 25,000 or over,*[1] *by occupations, July 1, 1938*—Continued

Division and occupation	Group III: Cities with population of 25,000 and under 50,000											
	Arizona		Colorado		Montana				New Mexico		Utah	
	Tucson		Colorado Springs		Butte		Great Falls		Albuquerque		Ogden	
	Number	Salary rate	Number	Salary rate	Number	Salary rate	Number	Salary rate	Number	Salary rate	Number	Salary rate
All occupations[2]	35		43		44		44		37		28	
Fire fighting:												
Chiefs	1	$2,880	1	$3,000	1	$3,000	1	$2,700	1	$2,880	1	$2,400
Assistant or deputy chiefs	2	2,400	1	2,400	1	2,520	1	2,160	1	2,220		
Assistant deputy chiefs												
Battalion or district chiefs												
Captains	8	2,250	10	1,800	4	2,100	5	2,040	1	1,920	3	1,980
									1	1,800		
Lieutenants							4	1,980	7	1,740	3	1,920
Engineers, fire engine									8	1,656	6	1,860
Drivers	14	2,160							4	1,656	3	1,860
Privates:												
1st grade	9	2,160	27	1,680	30	1,944	33	1,920	3	1,596	8	1,800
2d grade	1	1,620			1	1,932			8	1,440		
3d grade			2	1,500	1	1,920			3	1,320		
4th grade												
5th grade												
Fire prevention:												
Marshals or wardens			1	1,800			(3)					
Assistant marshals or wardens												
Inspectors											1	1,920
Apparatus:												
Superintendents of machinery			1	1,860							1	1,920
Machinists												
Auto mechanics					1	3,000	(3)					
General mechanics—carpenters												
Miscellaneous—laborers												
Fire alarm:												
Superintendents											1	2,280
Assistant superintendents												
Fire alarm operators:												
Operators, fire alarm	(4)		(3)				(3)					
Operators, telephone					3	1,944						
Electricians					1	2,400						
Linemen												
Clerical:												
Secretaries					1	1,944					1	1,800
Assistant secretaries	(3)		(3)				(3)					
Clerks												
Stenographers												

[1] Based on U. S. Census of Population for 1930.
[2] Totals include regular, full-time employees, but do not include part-time employees, call men, or volunteers.
[3] Men from uniformed force assigned to this work.
[4] Work performed by a separate city bureau.

TABLE C.—*Average hours and days on duty per week in fire departments of 10 Mountain Division cities, by functional division, July 1, 1938*

System of operation	Average hours on duty per week	Average days on duty per week	All divisions				Division: Fire fighting			
			All cities	City group [1] I	City group [1] II	City group [1] III	All cities	City group [1] I	City group [1] II	City group [1] III
Total number of employees [2]			904	524	64	316	813	463	59	291
Continuous duty	168	7.0	21	12	3	6	21	[3] 12	[4] 3	[5] 6
2-platoon—regular [6]			717	457	56	204	708	449	56	203
On 24 hours, off 24 hours	84	3.5	576	457	56	63	567	449	56	62
Shift 7th day	84	6.5	105			105	105			105
Shift each week, no time off	84	7.0	36			36	36			36
3-platoon: [7] 8-hour tours, off every 8th day	49	6.1	83			83	80			80
Other [8]	46.6	5.6	83	55	5	23	4	[9] 2		[10] 2

System of operation	Division: Fire prevention				Apparatus				Fire alarm				Clerical			
	All cities	City group [1] I	II	III	All cities	City group [1] I	II	III	All cities	City group [1] I	II	III	All cities	City group [1] I	II	III
Total number of employees [2]	13	9		4	30	21	3	6	41	27	2	12	7	4		3
Continuous duty																
2-platoon-regular [6]	1			1	8	8										
On 24 hours, off 24 hours	1			1	8	8										
Shift 7th day																
Shift each week, no time off																
3-platoon: [7] 8-hour tours, off every 8th day									3			3				
Others [8]	12	9		3	22	13	3	6	38	27	2	9	7	4		3

[1] Group I includes 2 cities having a population of 100,000 or more: group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000, based on U. S. Census of Population for 1930.

[2] Includes only regular, full-time employees.

[3] Includes 1 chief, 1 assistant chief, and 10 assistant deputy chiefs.

[4] Includes 1 chief and 2 assistant chiefs.

[5] Includes 5 chiefs and 1 assistant chief.

[6] Under each variation of the regular 2-platoon system the employees work in 2 groups, 1 group is on duty while the other is off duty. Over a period of days, therefore, each group is on duty as many hours as the other, or 12 hours a day and 84 hours a week. Each variation of the 2-platoon system, however, spreads these 84 hours into different numbers of days on duty per week. The average number of days on duty per week for each variation is arrived at by dividing the number of days on duty per year by 52.143.

[7] The average hours and days on duty per week is arrived at by dividing the total number of hours or days on duty per year by 52.143.

[8] The average number of working hours and days per week is arrived at by dividing the total number of weekly man-hours and man-days by the total number of employees under "other".

[9] Includes 1 chief and 1 assistant chief.

[10] Includes 2 chiefs.

TABLE D.—*Total salaries and total number of employees of fire departments in 10 Mountain Division cities, July 1, 1938*

Division [1] and occupation	Number of employees				Total salaries			
	All Cities	City group [2]			All cities	City group [2]		
		I	II	III		I	II	III
All occupations [3]	904	524	64	316	$1,803,519	$1,052,820	$118,164	$632,535
Fire fighting	812	463	58	291	1,611,243	926,880	107,220	577,143
Chiefs	10	2	1	7	30,840	7,800	2,580	20,460
Assistant or deputy chiefs	11	2	2	7	27,204	5,760	4,320	17,124
Assistant deputy chiefs	11	10	------	1	29,844	27,000	------	2,844
Battalion chiefs	2	2	------	------	5,160	5,160	------	------
Captains	123	61	14	48	262,764	132,840	26,880	103,044
Lieutenants	40	26	------	14	80,580	54,720	------	25,860
Engineers—fire engine	65	35	------	30	131,232	71,400	------	59,832
Drivers	21	------	------	21	42,444	------	------	42,444
Privates—All grades	529	325	41	163	1,001,175	622,200	73,440	305,535
1st grade	450	276	37	137	864,768	534,180	66,600	263,988
2d grade	29	16	2	11	50,352	29,760	3,480	17,112
3d grade	30	18	2	10	52,080	32,160	3,360	16,560
4th grade	15	15	------	------	26,100	26,100	------	------
5th grade	5	------	------	5	7,875	------	------	7,875
Fire prevention	13	9	------	4	27,108	18,540	------	8,568
Marshals or wardens	3	1	------	2	7,188	2,700	------	4,488
Assistant marshals or wardens	1	1	------	------	2,040	2,040	------	------
Inspectors	9	7	------	2	17,880	13,800	------	4,080
Apparatus	30	20	4	6	64,620	43,620	6,984	14,016
Superintendents of machinery	6	2	1	3	13,872	5,340	2,064	6,468
Machinists	9	9	------	------	19,440	19,440	------	------
Auto mechanics	12	8	1	3	26,148	16,800	1,800	7,548
General mechanics	2	1	1	------	3,960	2,040	1,920	------
Others	1	------	1	------	1,200	------	1,200	------
Fire alarm	40	26	2	12	82,644	51,840	3,960	26,844
Superintendents	5	2	1	2	12,348	5,220	2,160	4,968
Assistant superintendents	1	1	------	------	2,160	2,160	------	------
Operators—fire alarm	17	11	------	6	35,004	21,360	------	13,644
Operators—telephone	3	------	------	3	5,832	------	------	5,832
Electricians	2	1	------	1	4,380	1,980	------	2,400
Linemen	12	11	1	------	22,920	21,120	1,800	------
Clerical	9	6	------	3	17,904	11,940	------	5,964
Secretaries	4	1	------	3	8,124	2,160	------	5,964
Assistant secretaries	1	1	------	------	2,160	2,160	------	------
Clerks and bookkeepers	3	3	------	------	5,760	5,760	------	------
Stenographers and typists	1	1	------	------	1,860	1,860	------	------

[1] All fire departments assign men from the fire-fighting division to the other divisions and carry these assigned men on the fire-fighting division list. This is done to provide the fire department with a reserve for cases of emergency. As a result of this method of assignment, the fire-fighting division is always shown to be larger than it actually is on a routine day. Some other factors also are responsible for the small size of the nonfire-fighting divisions. In some cities, for example, the maintenance work is let to private contractors, part of the fire-prevention work is done by the building inspector's office, and the fire alarm work is done by the local telephone company or by a separate city bureau.

[2] Group I includes 2 cities having a population of 100,000 or more; group II, 1 city having a population of 50,000 and under 100,000; and group III, 7 cities having a population of 25,000 and under 50,000. Based on U. S. Census of Population for 1930.

[3] Includes only regular, full-time employees.