Atlantic & Pacific Railroad Company.

(WESTERN DIVISION.)

TIME TABLE
No. 21.

TO TAKE EFFECT SUNDAY, FEBRUARY 26, 1888, AT 12:05 O'CLOCK, A. M.

For the Information and Government of Employes Only.

THE COMPANY RESERVES THE RIGHT TO VARY FROM IT AT PLEASURE.

STUDY CAREFULLY—IMPORTANT CHANGES WHICH ALL MUST UNDERSTAND ALIKE.

MOUNTAIN TIME IS STANDARD USED.

PREVIOUS TIME TABLES ARE VOID.

GEO. W. CRANE & CO., PRINTERS AND BINDERS, TOPEKA, KAS.

ARIZONA DIVISION.

TIME TABLE No. 21.

WESTWARD.

35. A. T. & S. F. Freight.	33. A. T. & S. F. Freight.	3. A. T. & S. F. Express.		15. Freight.	13. Freight.	11. Freight.	9. Fast Freight.	1. Pacific Express.	Capacity of Siding.	Telegraph Stations.	Coal and Water.	Distance from Albuquerque.	STATIONS.	Ruling Grade Ascending.
Second Class.	Second Class.	First Class.		Second Class.	Second Class.	Second Class.	Second Class.	First Class.						
Daily.	Daily.	Daily.		Daily.	Daily.	Daily.	Daily.	Daily.					Leave.	
12:25 pm	11:30 pm	7:00 am				6:20 am	**10:35** pm	7:30 am	1000	N	C W	0	**ALBUQUERQUE.**	21.1
1:05	12:03 am	7:18				7:00	11:05	7:47	48			7.6	BARR.	21.1
1:13	12:10	7:22				7:10	11:15	7:52	42			9.4	ISLETA.	
1:30 pm	12:25 am	7:30 am				7:25	11:35	8:00	18	N	W	12.6	**A. & P. JUNC.**	52.8
						8:35	**12:35** am	**8:35**	40			23.3	LUNA.	52.8
						9:30	1:33	9:00	41	T	W	33.9	RIO PUERCO.	52.8
						10:30	**2:34**	9:35	38			47.1	SAN JOSE.	52.8
						11:25	3:32	10:08	38			59.7	EL RITO.	52.8
						12:20 pm	4:10	**10:26**	35	T	C W	65.9	LAGUNA.	52.8
						12:55	4:38	10:42	39			72.0	CUBERO.	52.8
						1:45	5:30	11:12	38	T	W	83.4	McCARTYS.	52.8
						2:50	6:29	11:45	39	T	W	96.0	GRANTS.	52.8
						3:48	**7:20**	12:14 pm	38		W	107.2	BLUEWATER.	52.8
						5:00	8:30	12:52	38	T		121.8	CHAVES.	52.8
						6:10 pm **7:55** pm	9:45 am 10:30 am	1:30 pm 1:55 pm	525	N	C W	136.0	Ar. Le. **COOLIDGE.**	0
Daily.	Daily.	Daily.				7:35	11:10	2:20	38	T		146.1	WINGATE.	11.6
						9:20 9:40	11:55	2:45	38	T	W	157.7	**GALLUP.**	9.5
						10:17	12:27 pm	3:03	39			165.6	DEFIANCE.	3.2
						10:50	1:02	3:23	39	T		174.1	MANUELITO.	15.8
						11:45	1:53	**3:54**	39			186.9	ALLANTOWN.	15.8
						12:36 am	**2:45**	**4:25**	38			199.7	SANDERS.	15.8
						1:30	**3:47**	5:03	40	T	C W	212.8	NAVAJO SPRINGS.	0
						2:18	4:44	5:35	38			225.7	BILLINGS.	0
						3:06	5:39	6:06	39		W	238.1	CARRIZO.	15.8
						4:10	6:42 6:55	**6:42**	72	T	W	252.9	HOLBROOK.	15.8
						4:52	7:37	7:08	50			263.2	ST. JOSEPH.	15.8
						5:27	8:25	7:34	50		W	274.7	HARDY.	15.8
						6:15 am 8:10 am	9:10 pm 10:00 pm	8:00 pm 8:30 pm	375	N	C W	285.7	Ar. Le. **WINSLOW.**	75.0
					11:00	9:10	10:55	9:12	38			298.2	DENNISON.	75.0
					12:06 pm	**10:15**	12:01 am	9:56	38	T	W	311.6	CAÑON DIABLO.	75.0
					1:10	11:10	1:12	10:33	39			322.6	ANGELL.	75.0
					1:45	11:39	1:50	10:53	22	T	C W	328.5	WALNUT.	75.0
					2:14	**12:05** pm	2:30	11:09	38			333.3	COSNINO.	75.0
				3:30 pm	**3:15**	1:10	**3:30**	11:45	38	N	W	343.9	**FLAGSTAFF.**	75.0
				4:45	4:17	**2:10**	4:33	12:30 am	38	T	W	356.2	BELLEMONT.	75.0
				5:43	5:15	3:08	5:30	1:10	40	T		367.9	CHALENDER.	75.0
				6:30 pm	6:05 pm 9:35 am	4:00 pm 6:20 pm	6:20 am 6:50 am	1:50 am 2:10 am	200	N	C W	378.0	Ar. Le. **WILLIAMS.**	
				Daily.	Daily.	Daily.	Daily.	Daily.						

All Conductors and Enginemen running between Albuquerque and A. & P. Junction will be governed by A. T. & S. F. Time Table, Rules and Regulations.

WATER at HOUCK'S TANK, 5.5 miles west of Allantown, and at NAVAJO TANK, 3.2 miles west of Navajo Springs.

Reduce speed to four miles per hour in crossing bridge at Cañon Diablo, and to ten miles per hour in crossing bridges at Cañon Padre and Walnut Creek.

ARIZONA DIVISION.

TIME TABLE No. 21.

EASTWARD.

Ruling Grade Ascending.	STATIONS.	Distance from Mojave.	Coal and Water.	Telegraph Stations.	Capacity of Siding.	2. Atlantic Express.	8. Fast Freight.	10. Freight.	12. Freight.	14. Freight.		4. A. T. & S. F. Express.	34. A. T. & S. F. Freight.	36 A. T. & S. F. Freight.
						First Class.	Second Class.	Second Class.	Second Class.	Second Class.		First Class.	Second Class.	Second Class.
	Arrive.					Daily.	Daily.	Daily.	Daily.	Daily.		Daily.	Daily.	Daily.
	ALBUQUERQUE.	815.2	C W	N	1000	1:30 am	6:10 am	3:40 pm				**10:35** pm	4:00 am	4:00 pm
26.4	7.6													
	BARR.	807.6			48	1:15	5:33	3:04				10:15	3:25	3:20
19.5	1.8													
	ISLETA.	805.8			42	1:10	5:25	2:56				10:10	3:15	3:10
	3.2													
	A. & P. JUNC.	802.6	W	N	18	1:02	5:10	2:41				10:02 pm	3:00 am	2:55 pm
36.9	10.7													
	LUNA.	791.9			40	**12:35**	4:20	1:53						
52.8	10.6													
	RIO PUERCO.	781.3	W	T	41	12:01 am	3:31	1:03						
0	13.2													
	SAN JOSE.	768.1			38	11:25	**2:34**	12:12 pm						
23.2	12.6													
	EL RITO.	755.5			38	10:52	1:47	**11:25**						
0	6.2													
	LAGUNA.	749.3	C W	T	35	10:36	1:25	**10:26**						
24.8	6.1													
	CUBERO.	743.2			39	10:20	1:01	9:50						
22.7	11.4													
	McCARTYS.	731.8	W	T	38	9:50	12:20 am	8:55						
52.8	12.6													
	GRANTS.	719.2	W	T	39	9:15	11:30	8:02						
52.8	11.2													
	BLUEWATER.	708.0	W		38	8:46	10:44	**7:20**						
31.7	14.6													
	CHAVES.	693.4		T	38	8:08	9:45	6:10						
52.8	14.2													
	COOLIDGE. Le.	679.2	C W	N	525	7:30 pm	8:45 pm	5:00 am						
	Ar.					7:10 pm	**7:55** pm	4:00 am						
31.7	10.1													
	WINGATE.	669.1		T	38	6:45	7:08	3:15				Daily.	Daily.	Daily.
31.7	11.6													
	GALLUP.	657.5	W	T	38	**6:14**	**6:14**	2:30 2:15						
31.7	7.9													
	DEFIANCE.	649.6			39	5:53	5:29	1:30						
31.7	8.5													
	MANUELITO.	641.1		T	39	5:31	4:51	12:44 am						
31.7	12.8													
	ALLANTOWN.	628.3			39	4:58	**3:54**	**11:45**						
31.7	12.8													
	SANDERS.	615.5			38	**4:25**	**2:45**	10:46						
31.7	13.1													
	NAVAJO SPRINGS.	602.4	C W	T	40	**3:47**	1:45	9:45						
31.7	12.9													
	BILLINGS.	589.5			38	3:10	12:42 pm	8:48						
31.7	12.4													
	CARRIZO.	577.1	W		39	2:30	11:52	7:52						
31.7	14.8													
	HOLBROOK.	562.3	W	T	72	1:48	10:55	**6:42**						
31.7	10.3													
	ST. JOSEPH.	552.0			50	1:19	10:14	5:58						
17.4	11.5													
	HARDY.	540.5	W		50	12:46	9:28	5:13						
31.7	11.0													
	WINSLOW. Le.	529.5	C W	N	375	12:15 pm	8:45 am	4:30 pm						
	Ar.					11:45 am	7:30 am	3:25 pm	7:20 pm					
72.9	12.5													
	DENNISON.	517.0			38	**11:00**	6:40	2:38	6:30					
45.9	13.4													
	CAÑON DIABLO.	503.6	W	T	38	**10:15**	5:45	1:51	5:36					
73.9	11.0													
	ANGELL.	492.6			39	9:41	4:58	**1:10**	4:50					
75.0	5.9													
	WALNUT.	486.7	C W	T	22	9:23	4:33	12:33	4:22					
75.0	4.8													
	COSNINO.	481.9			38	9:07	4:15	**12:05** pm	4:01					
75.0	10.6													
	FLAGSTAFF.	471.3	W	N	38	8:34	**3:30**	10:55	**3:15**	11:40 am				
75.0	12.3													
	BELLEMONT.	459.0	W	T	38	7:55	2:30	9:47	**2:10**	10:10				
95.0	11.7													
	CHALENDER.	447.3		T	40	7:18	1:25	8:50	1:12	9:10				
95.0	10.1													
	WILLIAMS. Le.	437.2	C W	N	200	6:45 am	12:30 am	8:00 am	12:20 pm	8:15 am				
	Ar.					6:15 am	12:01 am	6:50 am	11:25 am					
						Daily.	Daily.	Daily.	Daily.	Daily.				

All Conductors and Enginemen running between Albuquerque and A. & P. Junction will be governed by A. T. & S. F. Time Table, Rules and Regulations.

WATER at HOUCK'S TANK, 5.5 miles west of Allantown, and at NAVAJO TANK, 3.2 miles west of Navajo Springs.

Reduce speed to four miles per hour in crossing bridge at Cañon Diablo, and ten miles per hour in crossing at Cañon Padre and Walnut Creek.

CALIFORNIA DIVISION.

TIME TABLE No. 21.

WESTWARD.								EASTWARD.							
13. Freight.	11. Freight.	9. Fast Freight.	1. Pacific Express.	Distance from Albuquerque.	Telegraph Stations.	Ruling Grade Ascending.	STATIONS.	Ruling Grade Ascending.	Coal and Water.	Capacity of Siding.	Distance from Mojave.	2. Atlantic Express.	8. Fast Freight.	10. Freight.	12. Freight.
Second Class.	Second Class.	Second Class.	First Class.									First Class.	Second Class.	Second Class.	Second Class.
Daily.	Daily.	Daily.	Daily.									Daily.	Daily.	Daily.	Daily.
6:05 pm 9:35 am	4:00 pm 6:20 pm	6:20 am **6:50** am	1:50 am 2:10 am	378.0	N	75.0	Ar. Le. **WILLIAMS.** Le. Ar.	0	CW	200	437.2	6:45 am 6:15 am	12:30 am 12:01 am	8:00 am **6:50** am	12:20 pm 11:25 am
9:55	6:40	7:10	2:26	381.4		75.0	3.4 SUPAI.			36	433.8	5:59	11:40	6:25	11:05
10:30	7:10	7:35	2:58	386.1	T	75.0	4.7 McLELLAN.	137.3		63	429.1	5:25	11:10	5:45	**10:30**
11:10	7:40	8:01	3:32	391.1	T	75.0	5.0 FAIRVIEW.	137.3		45	424.1	4:49	10:40	5:10	9:53
11:58	8:30	**8:50**	**4:10**	400.9	N	14.8	9.8 **ASH FORK.**	95.0	W	77	414.3	**4:10**	9:45	**4:10**	**8:50**
12:40 pm	**9:00**	9:32	4:36	408.8		75.0	7.9 PINEVETA.	95.0		40	406.4	3:43	**9:00**	3:19	8:00
1:45	9:45	10:22	5:06	418.5		75.0	9.7 CROOKTON.	82.4		40	396.7	3:10	8:10	2:39	7:10
2:25	10:20	11:10	5:36	428.0	N	75.0	9.5 **PRESCOTT JUNC.**	95.0	W	60	387.2	2:38	7:20	1:54	5:55
2:45	10:35	11:25	5:45	430.7		75.0	2.7 CHINO.	92.3	C	41	384.5	2:29	7:00	1:39	5:30
3:42	11:15	12:15 pm	6:12	439.3		75.0	8.6 AUBREY.	91.3		41	375.9	1:49	5:55	1:06	4:45
4:34	**12:10** am	1:25	6:50	451.7		0	12.4 YAMPAI. 14.0 Ar. Le.	94.0		38	363.5	1:05	**4:34**	**12:10** am	3:40
5:20 pm 6:00 pm	1:20 am **2:20** am	**2:40** pm 4:00 pm	7:30 am 8:00 am	465.7	N	0	**PEACH SPRINGS.** Le. Ar.	95.0 75.0	CW	510	349.5	12:15 am 12:05 am	3:20 pm **2:40** pm	10:50 pm 9:45 pm	**2:20** am 12:30 am
6:50	3:07	4:55	8:33	477.6		0	11.9 TRUXTON.			38	337.6	**11:28**	1:30	8:45	**11:28**
7:45	3:50	5:43	9:05	488.9	T	43.8	11.3 HACKBERRY.	95.0		39	326.3	10:52	12:27 pm	**7:45**	10:21
9:10	4:48	**6:45**	9:38	501.2		50.2	12.3 HUALAPAI.	71.8		44	314.0	10:05	11:30	**6:45**	**9:10**
10:12	5:58	**8:00** 8:40	**10:20**	516.4	T	0	15.2 KINGMAN.	95.0	CW	43	298.8	9:10	**10:20**	5:23	**8:00**
11:10	6:45	9:27	10:53	526.9		0	10.5 DRAKE.	95.0		40	288.3	8:34	9:05	4:28	7:00
12:11 am	**7:46**	10:25	11:29	540.1	T	0	13.2 YUCCA.	75.0	W	40	275.1	7:58	**7:46**	3:15	5:55
1:05	8:35	11:20	12:09 pm	552.6		52.8	12.6 FRANCONIA.	75.0		40	262.6	7:18	6:30	2:04	4:45
2:00	9:20	12:25 am	**12:52**	566.2		13.2	13.6 POWELL.	75.0	W	82	249.0	6:35	5:25	**12:52**	3:40
2:25	9:45	12:50	1:20	572 0		26.4	5.8 EAST BRIDGE.	0		0	243.2	6:19	5:01	12:17	3:15
2:45 am	10:00 am 11:45 am	1:10 am 2:30 am	1:30 pm 2:00 pm	574.6	N		2.6 Ar. Le. **THE NEEDLES.** Le. Ar.	0	CW	252	240.6	6:10 pm 5:40 pm	4:45 am 4:00 am	12:01 pm 11:10 am	3:00 pm
Daily.	Daily.	Daily.	Daily.									Daily.	Daily.	Daily.	Daily.

Reduce speed to four miles per hour, crossing iron bridges in Johnson's Cañon and Colorado River Bridge.

Water at SUPAI TANK 2.2 miles west of SUPAI, and at TRUXTON TANK 3.8 miles west of TRUXTON.

CALIFORNIA DIVISION. TIME TABLE No. 21.

WESTWARD.										EASTWARD.		
11. Freight.	9. Fast Freight.	1. Pacific Express.	Distance from Albuquerque.	Telegraph Stations.	Ruling Grade Ascending.	STATIONS.	Ruling Grade Ascending.	Coal and Water.	Capacity of Siding.	Distance from Mojave.	2. Atlantic Express.	8. Fast Freight.	10. Freight.
Second Class.	Second Class.	First Class.									First Class.	Second Class.	Second Class.
Daily.	Daily.	Daily.									Daily.	Daily.	Daily.
10:00 am	1:10 am	1:30 pm	574.6	N		Ar. Le. THE NEEDLES. Le. Ar.	0	C W	252	240.6	6:10 pm	4:45 am	12:01 pm
11:45 am	2:30 am	2:00 pm			74.0	7.3					5:40 pm	4:00 am	11:10 am
12:30 pm	**3:25**	2:24	581.9		74.0	JAVA. 7.3	0		51	233.3	5:20	**3:25**	10:35
1:15	4:20	2:55	589.2		74.0	IBEX. 9.3	0		50	226.0	4:52	2:50	10:00
2:05	5:30	3:31	598.5	T	74.0	HOMER. 7.6	22.0		50	216.7	4:23	2:05	9:20
2:55	6:25	**4:00**	606.1		0	GOFFS. 9.6	53.0		129	209.1	**4:00**	1:30	8:37
3.34	6:58	4:25	615.7	N	0	FENNER. 6.8	53.0		49	199.5	**3:34**	12:20 am	7:55
4:05	**7:20**	4:43	622.5		0	EDSON. 9.2	53.0		61	192.7	3:12	11:30	**7:20**
4:48	8:05	5:07	631.7	T	0	DANBY. 12.5	53.0	W	48	183.5	2:45	10:35	6:25
5:39	9:00	**5:39**	644.2		24.0	CADIZ. 7.8	53.0		53	171.0	2:07	9:35	5:30
6:16	9:37	5:59	652.0		11.0	BRISTOL. 6.5	48.0		66	163.2	1:42	9:02	4:50
6:46	10:10	6:15	658.5		37.0	AMBOY. 7.7	11.0		32	156.7	1:26	8:38	4:10
8:10	11:30	6:35 6:55	666.2	T	74.0	BAGDAD. 7.4	0	C W	58	149.0	1:05 12:45	**8:10**	3:40
9:05	**12:15** pm	**7:25**	673.6		74.0	SIBERIA. 10.0	0		47	141.6	**12:15** pm	**7:25**	2:40
10:20	1:15	8:04	683.6		0	ASH HILL. 6.7	53.0		62	131.6	11:36	6:27	1:55
10:55	1:40	8:20	690.3	T	53.0	LUDLOW. 9.1	11.0	W	51	124.9	11:20	5:55	1:27
11:40	2:15	8:55	699.4		37.0	LAVIC. 10.2	53.0		23	115.8	10:45	5:15	12:57
12:15 am	2:45	9:25	709.6	T	27.0	HASLETT. 13.0	40.0		53	105.6	10:15	4:30	**12:15** am
1:20	**3:35**	9:55	722.6		39.0	NEWBERRY. 11.9	0	W	100	92.6	9:45	**3:35**	11:17
2:20	4:30 4:50	**10:25**	734.5	T	34.0	DAGGETT. 9.4	31.0	W	110	80.7	9:15	2:42	**10:25**
3:05 am	5:40 pm 6:30 pm	10:55 pm 11:55 pm	743.9	N	0	Ar. Le. BARSTOW. Le. Ar. 1.1	0	C W	65	71.3	8:45 am 7:45 am	2:00 pm 1:25 pm	9:45 pm
	6:35	11:59	745.0	T	19.0	WATERMAN. 8.9	8.0		52	70.2	7:40	1:20	
	7:10	12:26 am	753.9		35.0	HINCKLEY. 9.7	25.0	W	52	61.3	7:18	12:47	
	7:50	12:55	763.6		35.0	HARPER. 13.4	13.0		52	51.6	6:54	12:14 pm	
	8:44	1:35	777.0	T	36.0	KRAMER. 17.8	25.0		54	38.2	6:20	11:28	
	9:56	2:28	794.8		51.0	ROGERS. 20.4	0	W	58	20.4	5:36	10:24	
	11:20 pm	3:30 am	815.2	N		Ar. MOJAVE. Le.		C W	152	0	4:45 am	9:15 am	
Daily.	Daily.	Daily.									Daily.	Daily.	Daily.

Water at Ibex Tank, 3.8 miles west of Java.

GENERAL NOTICE.

It is of the utmost importance that proper rules for the government of the employés of a railroad company should be literally and absolutely enforced, in order to make such rules efficient. If they cannot or ought not to be enforced, they ought not to exist. Officers or employés whose duty it may be to make or enforce rules, however temporary or unimportant they may seem, should keep this clearly in mind. If in the judgment of any one whose duty it is to enforce a rule, such rule cannot or ought not to be enforced, he should at once bring it to the attention of those in authority.

All employés should be required to be polite and considerate in their intercourse with the public. The reputation and prosperity of a company depend greatly upon the promptness with which its business is conducted and the manner in which its patrons are treated by its employés.

GENERAL RULES.

1. The Rules herein set forth apply to and govern all roads operated by the **Atlantic & Pacific Railroad Co. (Western Division.)**

They shall take effect with the issue of Time-table No. 21, and supersede all prior rules and instructions, in whatsoever form issued, which are inconsistent therewith.

2. In addition to these rules, the Time-tables will contain special instructions, as the same may be found necessary. Special instructions, whether in conflict with these rules or not, which may be given by proper authority, whether upon the Time-tables or otherwise, shall be fully observed while in force.

3. The head of each department must be conversant with the rules, supply copies of them to his subordinates, see that they are understood, enforce obedience to them, and report to the proper officer all violations and the action taken thereon.

4. Every employé of this company whose duties are in any way prescribed by these rules must always have a copy of them at hand when on duty, and must be conversant with every rule. He must render all the assistance in his power in carrying them out, and immediately report any infringement of them to the head of his department.

5. The fact that any person enters, or remains in, the service of the company will be considered as an assurance of willingness to obey its rules. No one will be excused for the violation of any of them, even though not included in those applicable to his department.

6. If in doubt as to the meaning of any rule or special instruction, application must be made at once to the proper authority for an explanation. Ignorance is no excuse for neglect of duty.

7. All employés will be regarded as in the line of promotion, advancement depending upon the faithful discharge of duty and capacity for increased responsibilities.

8. If an employé should be disabled by sickness or other cause, the right to claim compensation will not be recognized. An allowance, if made, will be a gratuity justified by the circumstances of the case, and the employé's previous good conduct.

9. Every employé, while on duty connected with the trains on any division of the road, is under the authority, and must conform to the orders, of the Superintendent or Trainmaster of that division.

10. Employés must wear the prescribed badges or uniforms while on duty.

11. Mail Agents, Express Messengers, Parlor and Sleeping-car Conductors and Porters, News Agents, and persons in charge of individual cars are subject, while on duty, to the rules governing employés of the company.

STANDARD TIME.

12. Mountain Standard Time is the only recognized standard, and will be transmitted from the General Office at Albuquerque.

13. The Standard Time will be telegraphed to all points from the General office at 3:00 p. m., Mountain time, daily.

14. Certain clocks will be designated at division points as Standard Clocks.

15. Where station clocks are provided, Station Agents must see that they show correct time; but Trainmen and Enginemen must not take time from such clocks unless they are also designated as Standard Clocks.

16. Each Conductor and Engineman must have a reliable watch, which has been examined and certified to on the form attached hereto by a responsible watchmaker, and must file such certificate with their Division Superintendent before they are allowed to take charge of train or engine. Watches must be examined, and certificates renewed every six months.

(1601)

WATCHMAKER'S CERTIFICATE.

THIS IS TO CERTIFY, That on.....188...
the watch of.....employed as
.....on the.....R..... has been examined and found to be a reliable and accurate timepiece, and in such repair as will, in my judgment, with proper usage, enable it to run within a variation not to exceed thirty seconds per week.

Name of maker.....
Brand.....
Number of Movement.....
Gold or Silver.....
Open or Hunting Case.....
Stem or Key Winding.....
Signed,.....Watchmaker.
Address.....

17. Each Conductor and Engineman must regulate his watch by the designated Standard Clock before starting on each trip, and register in the Train Register his name and the time at which he regulated his watch.

18. Conductors and Enginemen whose duties prevent them from having access to a Standard Clock must compare daily with, and regulate their watches by, those of Conductors and Enginemen who have Standard Time, and have registered their names as above provided.

TIME-TABLES.

19. A Time-table is the general law governing the arriving and leaving time of all regular trains at all stations. Time-tables will be issued from time to time, as may be necessary. The times given for each train on the Time-table is the Schedule of such train.

20. Each Time-table, from the moment it takes effect, supersedes the preceding Time-table, and all special instructions relating thereto; and

trains shall be run as directed thereby, subject to the rules. All regular trains on the road running according to the preceding Time-table, shall, **unless otherwise directed,** assume the times and rights of trains of corresponding numbers on the new Time-table.

21. Upon the Time-table not more than two sets of figures are shown for a train at any point.

The times at regular meeting or passing points are shown in **full-faced type;** other times in ordinary type.

When two times are shown for a train at any station, the earlier (placed in its proper position) is the arriving time and the later the leaving time.

When but one time is shown in ordinary type it is the leaving time.

When but one time is shown in **full-faced type** it is the actual meeting or passing time.

When both the arriving and leaving times are shown in **full-faced type** it indicates that one or more trains are to be met or passed at or between those times.

In all cases trains are required to clear and follow as per Rules 85 to 90, inclusive.

22. On the employés' Time-table the words "daily," "daily, except Sunday," etc., printed at the head and foot in connection with a train, indicate how it shall be run. The figures given at intermediate stations shall not be taken as indicating that a train will stop unless the rules require it. The following signs placed before the figures indicate:

"s"—Regular stop;
"f"—Stop on signal to receive or discharge passengers or freight;
"¶"—Stop for meals;
"N"—Day and night telegraph station;
"G"—Night telegraph station;
"T"—Day telegraph station.
"W"—Water Station.
"C"—Coal Station.

Trains are designated by numbers, and their class indicated on the Time-tables.

SIGNAL RULES.

SIGNALS.

23. Conductors, Enginemen, Firemen, Brakemen, Station Agents, Telegraph Operators, Switchmen, Switch-tenders, Track Foremen, Road and Bridge Watchmen, and all other employés whose duties may require them to give signals, must provide themselves with the proper appliances, and keep them in good order and always ready for immediate use.

24. Flags of the proper color must be used by day, and lamps of the proper color by night, or whenever from fog or other cause the day signals cannot be clearly seen.

25. Red signifies **danger,** and is a signal to stop.

26. Green signifies **caution,** and is a signal to go slowly.

27. White signifies **safety,** and is a signal to go on.

28. Green and white is a signal to be used to stop trains at flag stations for passengers or freight.

29. Blue is a signal to be used by Car Inspectors.

30. An explosive cap or torpedo, placed on top of the rail, is a signal to be used **in addition** to the regular signals.

The explosion of **one** torpedo is a signal to **stop** immediately; the explosion of **two** torpedoes is a signal to **reduce speed** immediately, and look out for a danger signal.

31. A fusee is an **extra** danger signal, to be lighted and placed on the track at night, in cases of accident or emergency.

A train finding a fusee burning upon the track must come to a stop, and not proceed until it is burned out.

32. A flag or lamp swung across the track, a hat or any object waved violently by any person on the track, signifies danger, and is a signal to stop.

TRAIN SIGNALS.

33. Each train, while running, must display two green flags by day and two green lights by night, one on each side of the rear of the train, as Markers, to indicate the rear of the train. Yard engines will not display markers.

34. Each train running after sunset, or when obscured by fog or other cause, must display the head-light in front, and two or more red lights in the rear. Yard engines must display two green lights instead of red, except when provided with a head-light on both front and rear.

35. Each car on a passenger train while running must be in communication with the engine. In the absence of an equivalent appliance, a bell-cord must be attached to the signal-bell of the engine, passing through or over the entire length of the train, and secured to the rear end of it.

36. Two green flags by day and two green lights by night, displayed in the places provided for that purpose on the front of an engine, denote that the train is followed by another train, running on the same Schedule and entitled to the same **Time-table rights** as the train carrying the signals.

37. Two white flags by day and two white lights by night, displayed in the places provided for that purpose on the front of an engine, denote that the train is an extra. These signals must be displayed by all extra trains, but not by yard engines.

38. A blue flag by day and a blue light by night, placed on the end of a car, denote that Car Inspectors are at work under or about the car or train. The car or train thus protected must not be coupled to, or moved, until the blue signal is removed by the Car Inspectors.

When a car or train standing on a siding is protected by a blue signal, other cars must not be placed in front of it so that the blue signal will be obscured, without first notifying the Car Inspector, that he may protect himself.

WHISTLE SIGNALS.

39. One **long** blast of the whistle is the signal for approaching stations, railroad crossings and junctions (thus, ——).

40. One **short** blast of the whistle is the signal to apply the brakes—stop (thus, –).

41. Two **long** blasts of the whistle is the signal to throw off the brakes (thus, —— ——).

42. Two **short** blasts of the whistle is an answer to any signal, except "train parted" (thus, – –).

43. Three **long** blasts of the whistle (to be repeated until answered as provided in Rule No. 62) is a signal that the train has parted (thus, —— —— ——).

44. Three **short** blasts of the whistle, when the train is **standing** (to be repeated until answered as provided in Rule No. 61) is a signal that the train will back (thus, – – –).

45. Four **long** blasts of the whistle (thus: —— —— —— ——) is the signal to call in a Flagman from the West.

Four **long** followed by one **short** blast of the whistle (thus: —— —— —— —— –) is the signal to call in a flagman from the East.

46. Four **short** blasts of the whistle is the Engineman's call for signals from Switch-tenders, Watchmen, Trainmen and others (thus, – – – –).

47. Five **short** blasts of the whistle is a signal to the Flagman to go back and protect the rear of the train (thus, – – – – –).

48. One **long** followed by two **short** blasts of the whistle is a signal to be given by trains on single track, when displaying signals for a following train, to call the attention of trains of the same or inferior class to the signals displayed, (thus —— – –).

49. Two **long** followed by two **short** blasts of the whistle is the signal for approaching road crossings at grade (thus, —— —— – –).

50. A succession of **short** blasts of the whistle is an alarm for persons or cattle on the track, and calls the attention of Trainmen to danger ahead.

BELL-CORD SIGNALS.

51. One tap of the signal-bell, when the train is **standing,** is the signal to start.

52. Two taps of the signal-bell, when the train is **running,** is the signal to stop at once.

53. Two taps of the signal-bell, when the train is **standing,** is the signal to call in the Flagman.

54. Three taps of the signal-bell, when the train is **running,** is the signal to stop at the next station.

55. Three taps of the signal-bell, when the train is **standing,** is the signal to back the train.

56. Four taps of the signal-bell, when the train is **running,** is the signal to reduce speed.

57. When one tap of the signal bell is heard while a train is **running,** the Engineman must immediately ascertain if the train is parted, and, if so, be governed by Rule No. 103.

58. Signals of the same number of sounds shall have the same significance when given by other appliances than bell-cords and signal-bells.

LAMP SIGNALS.

59. A lamp swung across the track is the signal to stop.

60. A lamp raised and lowered vertically is the signal to move ahead.

61. A lamp swung vertically in a circle across the track, when the train is **standing,** is the signal to move back.

62. A lamp swung vertically in a circle at arm's length across the track, when the train is **running,** is the signal that the train has parted.

63. A flag, or the hand, moved, in any of the directions given above, will indicate the same signal as given by a lamp.

FIXED SIGNALS.

64. Fixed signals are placed at junctions, railroad crossings, stations and other points that require special protection. Special instructions will be issued indicating their position and use.

RULES GOVERNING THE USE OF SIGNALS.

65. A signal imperfectly displayed, or the absence of a signal at a place where a signal is usually shown, must be regarded as a danger signal, and the fact reported to the Division Superintendent.

66. The unnecessary use of the whistle is prohibited; when necessary in shifting at stations and in yards, the engine-bell should be rung, and the whistle used only when required by rule or law, or when necessary to prevent accident.

67. The whistle must not be sounded while passing a passenger train, except in cases of emergency or danger, or when required by the rules.

68. When a danger signal (except a fixed signal) is displayed to stop a train, it must be acknowledged as provided in Rule No. 42.

69. The engine-bell must be rung before starting a train, and when running through streets of towns or cities.

70. The engine-bell must be rung for a quarter of a mile before reaching every road crossing at grade, and until it is passed; and the whistle must be sounded at all whistling-posts.

71. When two or more engines are coupled to the head of a train, the leading engine only shall display the signals, as provided in Rules Nos. 36 and 37.

72. One flag or light displayed as a classification signal will be regarded the same as if two were displayed; but Conductors and Enginemen will be held responsible for the proper display of all train signals.

73. When a train is being pushed by an engine (except when shifting and making up trains in yards) a white light must be displayed on the front of the leading car at night, or when the train is obscured by fog or other cause.

74. When a train turns out to meet or pass another train the red lights must be removed and green displayed as soon as the track is clear; but the red must again be displayed before returning to its own track.

Head-lights on engines when on side tracks or at the end of double tracks, waiting for trains, must be covered as soon as the track is clear and the train has stopped.

75. The combined green and white signal is to be used to stop a train only at the flag stations designated by the schedule of that train. When it is necessary to stop a train at a point that is not a flag station for that train, a red signal must be used.

76. White signals must be used by Watchmen at public road and street crossings to prevent persons and teams from crossing when trains are approaching. Danger signals must be used only when necessary to stop trains.

77. Torpedoes must not be placed near stations or road crossings, where persons are liable to be injured by them.

78. All signals must be used strictly in accordance with the rules, and Trainmen and Enginemen must keep a constant lookout for signals.

TRAIN RULES.

CLASSIFICATION OF TRAINS.

79. All trains are designated as regular or extra. Regular trains are those represented on the Time-table, and may consist of one or more sections. All sections of a train, except the last, must display signals as provided in

Rule No. 36. Extra trains are those not represented on the Time-table. An engine without cars, in service on the road, shall be considered a train.

80. All regular trains are classified on the Time-table with regard to their priority of right to the track; trains of the first-class being superior to those of the second and all succeeding classes, and trains of the second-class being superior to those of the third and all succeeding classes; and so on indefinitely. The terms passenger, freight or mixed are descriptive and do not refer to class.

81. Extra trains may be distinguished as:
Passenger Extra or Special;
Freight Extra;
Work-Train Extra.

82. All extra trains are of inferior class to all regular trains of whatever class.

MOVEMENT OF TRAINS.

83. **A train of inferior class must in all cases keep out of the way of a train of superior class.**

84. On single track, all **Eastbound trains have the absolute right of track over all Westbound trains of the same class.**

85. When trains of the same class meet on single track, the train not having right of track must take the siding and be clear of the main track before the leaving time of the opposing train; but such train must not pass the switch to back in on a siding, until after the arrival of the opposing train, unless otherwise directed by special instructions. When necessary to back in on the siding, before passing the switch, a Flagman must be sent out in the direction of the opposing train, as per Rule No. 99.

86. When a train of inferior class meets a train of superior class on single track, the train of inferior class must take the siding and clear the train of superior class **five** minutes. A train of inferior class must keep **ten** minutes off the time of a train of superior class following it.

87. A train must not leave a station to follow a passenger train until **five** minutes after the departure of such passenger train, unless some form of block signal is used.

88. Passenger trains running in the same direction must keep not less than **ten** minutes apart, unless some form of block signal is used.

89. Freight trains following each other must keep not less than **ten** minutes apart (except in closing up at stations or at meeting and passing points), unless some form of block signal is used.

90. No train must leave a station expecting to meet or to be passed at the next station by a train having the right of track, unless it has full time to make the meeting or passing point, and clear the track by the time required by Rules Nos. 85 and 86.

91. A train not having right of track must be entirely clear of the main track by the time it is required by rule to clear an opposing train or a train running in the same direction; failing to do so, it must be immediately protected, as provided in Rule No. 99.

92. Except at meeting or passing points, as provided in Rules Nos. 85 to 91, inclusive, no train must arrive at a station in advance of its schedule arriving time, when shown.

No train must leave a station in advance of its schedule leaving time.

93. All trains must **stop** at schedule meeting or passing points on single track, if the train to be met or passed is of the same class, unless the switches are plainly seen to be right, and the track clear. The point at which a train should stop is the switch used by the train to be met or passed in going on the siding.

When the expected train of the same class is not found at the schedule meeting or passing point, the train having right of track must approach all sidings prepared to stop, until the expected train is met or passed.

94. All trains must approach the end of double track, stations, junctions, railroad crossings at grade, and drawbridges, prepared to stop, and must not proceed until the switches or signals are seen to be right, or the track is plainly seen to be clear. Where required by law, all trains must stop.

95. No train must leave a junction, a terminal, or other starting point, or pass from double to single track, until it is ascertained that all trains due, which have the right of track against it, have arrived.

96. When a passenger train is detained at any of its usual stops more than **three** minutes, the Flagman must go back with danger signals and protect his train, as provided in Rule No. 99; but if it stops at any unusual point, the Flagman must immediately go back far enough to be seen from a train moving in the same direction when it is at least **twenty** telegraph poles from the rear of his own train, and if the stop is over **three** minutes he must be governed by Rule No. 99.

When it is necessary to protect the front of the train, the same precautions must be observed by the Fireman. If the Fireman is unable to leave the engine, the front Brakeman must be sent in his place.

97. When a freight train is detained at any of its usual stops more than **three** minutes, where the rear of the train can be plainly seen from a train moving in the same direction at a distance of at least **twenty** telegraph poles, the Flagman must go back with danger signals not less than **fifteen** telegraph poles, and as much further as may be necessary to protect his train; but if the rear of his train cannot be plainly seen at a distance of at least **twenty** telegraph poles, or if it stops at any point that is not its usual stopping place, the Flagman must go back not less than **twenty** telegraph poles, and if his train should be detained until within **ten** minutes of the time of a passenger train moving in the same direction, he must be governed by Rule No. 99.

When it is necessary to protect the front of the train, the same precautions must be observed by the Fireman. If the Fireman is unable to leave the engine, the front Brakeman must be sent in his place.

98. When it is necessary for the Flagman to go back to protect the rear of his train, the next Brakeman must immediately take the Flagman's position on the train, and remain there until relieved by the Flagman; and on passenger trains the Baggage-master must take the place of the front Brakeman whenever necessary.

99. When a train is stopped by an accident or obstruction, the Flagman must immediately go back with danger signals to stop any train moving in the same direction. At a point **fifteen** telegraph poles from the rear of his train he must place **one** torpedo on the rail; he must then continue to go back at least **twenty** telegraph poles from the rear of his train and place **two** torpedoes on the rail, ten yards apart (one rail length), when he may return to a point **fifteen** telegraph poles from the rear of his train, and he must remain there until re-

called by the whistle of his engine; but if a passenger train is due within **ten** minutes, he must remain until it arrives. When he comes in, he will remove the torpedo nearest to the train, but the **two** torpedoes must be left on the rail as a caution signal to any following train.

If the accident or obstruction occurs upon single track, and it becomes necessary to protect the front of the train, or if any other track is obstructed, the Fireman must go forward and use the same precautions. If the Fireman is unable to leave the engine, the front Brakeman must be sent in his place.

100. Freight trains having work to do on any other track may cross over if no passenger train is due, provided no approaching freight train is in sight; and also provided that a Flagman has been sent with danger signals, as provided in Rule No. 99, not less than **fifteen** telegraph poles in the direction of the expected train.

101. When a freight train on double track turns out onto the opposite track to allow a passenger train running in the same direction to pass, and, while waiting, a passenger train from the opposite direction arrives, the freight train may cross back and allow it to pass, provided the other passenger train is not in sight; and also provided that a Flagman has been sent with danger signals, as provided in Rule No. 99, not less than **fifteen** telegraph poles in the direction of the expected train.

102. When it is necessary for a freight train on double track to turn out onto the opposite track to allow a passenger train running in the same direction to pass, and a passenger train running in the opposite direction is due, a Flagman must be sent back with danger signals, as provided in Rule No. 99, not less than **fifteen** telegraph poles in the direction of the following train, and the freight train must not cross over until one of the passenger trains arrives. Should the following passenger train arrive first, a Flagman must be sent forward on the opposite track with danger signals, as provided in Rule No. 99, not less than **fifteen** telegraph poles in the direction of the over-due passenger train before crossing over. Great caution must be used, and good judgment is required to prevent detention to either passenger train. The preference should always be given to the passenger train of superior class.

103. If a train should part while in motion, Trainmen must use great care to prevent the detached parts from coming into collision. Enginemen must give the signal as provided in Rule No. 43, and keep the front part of the train in motion until the detached portion is stopped.

The front portion will have the right to go back, regardless of all trains, to recover the detached portion, first sending a Flagman with danger signal **fifteen** telegraph poles in the direction in which the train is to be backed, and running with great caution, at a speed not exceeding four miles per hour. On single track all the precautions required by the Rules must also be taken to protect the train against opposing trains. **The detached portion must not be moved or passed around until the front portion comes back.** This Rule applies to trains of every class.

An exception will only be made to the above when it is known that the detached portion has been stopped, and when the whole occurrence is in plain view, no curves or other obstructions intervening, so that signals can be seen from both portions of the train. In that event the Conductor and Engineman may arrange for the re-coupling, using the greatest caution.

104. When a train is being pushed by an engine (except when shifting and making up trains in yards) a Flagman must be stationed in a conspicuous position on the front of the leading car, so as to perceive the first sign of danger and immediately signal the Engineman.

105. A train starting from a station, or leaving a junction, when a train of the same class running in the same direction is over-due, will proceed on its own time and rights, and the over-due train will run as provided in Rule 88 or 89.

106. A train which is delayed, and falls back on the time of another train of the same class, does not lose its rights.

107. Regular trains twelve hours or more behind their schedule time, lose all their rights.

108. A train overtaking another train of the same or superior class, **disabled so that it cannot move,** will run around it, assuming the rights and taking the orders of the disabled train, to the next telegraph office which is open, where it will report to the Division Superintendent. The disabled train will assume the rights of the last train passing it, till the next telegraph office is reached.

109. All messages or orders respecting the movement of trains or the condition of track or bridges must be in writing.

110. No train shall display signals for a following train without an order from the Division Superintendent.

111. Extra trains must not be run on single track without an order from the Division Superintendent.

112. When signals displayed for a following train are taken down at any point, Dispatcher must, until the signaled train arrives, see that opposing trains affected thereby which do not stop at that point are notified that signals were carried, and in case there is no train register at that point, **all** opposing trains affected must be notified.

If signals are taken down at a point where there is no Operator or other provision for the purpose, a Flagman must be left to notify opposing trains, until the signaled train arrives.

113. Work trains will be run as extras under special orders, and will be assigned working limits.

114. Great care must be exercised by the Trainmen of a train approaching a station where any train is receiving or discharging passengers.

115. Enginemen must observe trains on the opposite track, and if they are running too closely together, call attention to the fact.

116. No person will be permitted to ride on an engine except the Engineman, Fireman and other designated employés, in the discharge of their duties, without a written order from the proper authority.

117. Conductors will be held responsible for the proper adjustment of the switches used by them and their Trainmen, except where Switchtenders are stationed.

Whoever opens a switch shall remain at it until it is closed, unless relieved by some other competent employé.

When there is more than one train to use a switch it must not be left open unless one of the Trainmen of the following train is at the switch and takes charge of it.

118. Accidents, detention of trains, failure in the supply of water or fuel, or defects in the track or bridges, must be promptly reported by telegraph to the Superintendent and Division Superintendent.

119. No train shall leave a station without a signal from its Conductor.

120. Conductors and Enginemen will be held equally responsible for the violation of any of the rules governing the safety of their trains, **and they must take every precaution for the protection of their trains, even if not provided for by the rules.**

121. **In all cases of doubt or uncertainty, take the safe course, and run no risks.**

SPECIAL INSTRUCTIONS.

200. Conductors must be at their trains at terminal stations thirty minutes in advance of their leaving time.

201. Immediately before starting out on their runs, Conductors must go in person to the telegraph office and ask whether there are any orders for their trains.

202. Engine signal bell must be rung from rear platform of rear car and air-brakes tested before leaving each division point, and each station where any change is made in train. Bell cord must not be disconnected until train has come to a full stop.

203. Conductors will see that a red flag by day and a red lantern lighted at night are kept in rear end of the rear car of their trains. Three torpedoes must be attached to the staff of the flag, and three torpedoes to the wire guard of the lantern, so as to be ready for immediate use.

204. Potter bumper draw-heads must be connected with the two outside links or one center link, but the outside links must not be used to couple with a single draw-head.

205. Shortly before reaching a station at which the train stops, the Conductor or Brakeman will pass through each coach, except the sleeping cars, and announce twice, distinctly, with closed doors, the name of the station they are approaching.

206. Conductors of trains carrying Live Stock are required to consult the wishes of the Stockmen in matters pertaining to the care and comfort of the same. Especial attention must be given to stock unaccompanied by Drovers. In warm weather Trainmen will water hogs as often as may be necessary, without being requested to do so. Conductors must see to this personally.

207. Conductors will comply with instructions of Agents in placing cars and in doing other station work. If necessary to disturb cars for loading or unloading, they must be replaced in same position as found. In case Agents' orders are unreasonable, the fact must be reported to Div. Supt. It is the duty of Agents to report violations of this rule, and all cases where Conductors refuse cars that are ready to go.

208. Conductors and Switchmen must open their trains to clear all public crossings while standing at stations, and must in no case block a public crossing longer than five (5) minutes.

209. Conductors will see that the words "Bad Order" are written with chalk on both sides of disabled cars left at stations, and defective part marked with a cross.

210. All Conductors of work and construction trains, when they lay up for the night, must notify the Div. Supt. by wire, and give notice of where they intend working and their probable movements during the following day.

211. Conductors of freight trains must not take loaded cars or freight without the Way-Bills, or take Way-Bills without the freight or cars. A Conductor's Way-Bill (Form 816) must be made for **each car,** and for **each lot of individual freight** taken at a station where there is no Agent.

212. Conductors of freight trains not equipped with automatic brake must see that Brakemen govern the rate of speed of their trains while descending a grade. The brakes should never be applied so as to slip the wheels, and in descending heavy grades, Brakemen should see that the brakes are not kept on so long as to heat the wheels. To avoid this, the brakes should be frequently changed from one car to another. Cars left at stations must in all cases have hand brakes set.

213. Cars left at stations must have sufficient hand brakes set to prevent any possibility of their being blown out. The air-brakes must not be depended upon to hold cars left at stations. All cars left at non-agent sidings must be coupled up when practicable. In case of a single car or one with defective brakes, wheels should be securely blocked in addition to having hand-brakes set.

214. Any employé who, through carelessness or negligence, causes or permits damage to the property of the Company, or that of the public entrusted to its care, will be required to pay for the same, and the amount will be deducted from his wages.

215. Inasmuch as the coupling apparatus of cars is not uniform in style, size or strength, and as dead-woods and draw-bars do not always have the same projections, and various other causes render it dangerous to expose the hands, arms or persons of those engaged in coupling cars, all employés will be expected to use the utmost care in coupling or uncoupling cars or engines to guard against personal injury. They must be particular to notice the speed of the cars while moving, and if at a dangerous rate, no attempt must be made to couple by going between them. It is dangerous to uncouple or to attempt to place links, pins or draw-bars while cars are in motion, and is positively forbidden.

It is alike dangerous to assume that signals given to the Engineman or Fireman have been seen, and if seen will be obeyed—when obedience to those signals on the part of Engineman or Fireman is essential to the safety of an employé in the performance of his duty. He must know that the signal has been seen, understood and obeyed, before placing himself in a dangerous position—otherwise, without such knowledge, he assumes all risks of danger arising from any misunderstanding or disregard of signals.

216. All employés are expected to protect themselves from personal injury by avoiding risks. Those who may receive injuries on account of taking risks will have no claim upon the Company.

217. Conductors must see that passengers do not endanger themselves by imprudent exposure. When a passenger becomes disorderly, gentle means must be used to stop the nuisance. This failing, the Conductor must exercise his authority and confine such passenger for the safety and convenience of all until the next station is reached, where he will be put off.

Passengers must not be ejected from the cars without cause, and then only at a station, when train has stopped. Use no unnecessary force.

ENGINEMEN.

218. An Engineman will be subject to the order of his Conductor, and will be held equally responsible with him in carrying out all prescribed rules, which are necessary to perfect safety of their trains, and they must take every precaution for their protection, even if not provided for by the rules.

219. Enginemen will not start their trains until a signal is received from the Conductor to do so.

220. Enginemen and Firemen on freight trains should look back when starting, and frequently while running, to see that all is right.

221. Enginemen must see that their engines are provided with all necessary tools for use in case of accident, that two white, two red lanterns, and two red flags, together with torpedoes, are kept ready for prompt use.

222. Enginemen will report to the Division Superintendent by wire, and make written report at end of trip of all accidents occurring from whatever cause; also defective places in track or bridges.

223. Fires must not be drawn in front of stations or buildings, neither on crossings, frogs or switches. All fires drawn must be put out before leaving.

224. Enginemen will abstain from the use of the whistle as a signal for starting the train. Use the bell. Too much sounding of the whistle impairs its value as a signal of danger.

225. Enginemen must use great care, and all possible effort must be made to avoid killing stock. When stock is killed, report promptly to the Division Superintendent. Too frequent cases of stock killing will be taken as evidence of lack of care, and result in dismissal.

226. Enginemen will examine their engines at the end of runs, and report defects in books provided for that purpose.

227. When a signal to stop is given, either by Flagman on the track or from the train, Enginemen must acknowledge their perception of it by two short blasts of the whistle.

228. Brakes must not be relied on wholly when approaching railroad crossings or hazardous places, but steam must be shut off, and the train held under such control as to absolutely prevent running over crossings before stopping.

229. Enginemen will not permit their Firemen to handle engines in switching at stations and approaching meeting points, neither while going into and out of the yards, except upon an order from the Division Superintendent or Master Mechanic.

STATION AGENTS.

230. Station Agents are expected to devote their time to the interests of the company, treat every person with kindness, and render all information possible pertaining to the business in hand. To their civility, alertness and zeal depends much of the success of the line, as well as establishing the value of their services.

231. Depots must be opened, ventilated and warmed as early and as late as the business of the company requires. Buildings and platforms must be kept clean, orderly and free from obstructions. The ticket office must be opened at least thirty minutes before train time.

232. Agents must be on hand upon the arrival of trains which are expected to do station work, and give the Conductor such information as will enable him to do it in the most prompt and satisfactory manner.

233. Agents will be held accountable for the prompt dispatch of loaded cars from their stations. While Conductors are expected to inquire for such cars (when their trains are not full), they must receive timely notice of cars to go.

234. Agents must see that all cars are secured against the possibility of their being moved by the wind, and that all standing cars are out of the way for passing trains at night.

235. Agents will be held responsible for the security and position of switches. Under no circumstances allow them to be used in loading or unloading cars from main track, without an order from the Division Superintendent.

236. Report by wire to Division Superintendent all bad order cars at your station, loaded or empty (contents, if loaded), the number and initials, what is needed to make repairs, and by what train set out.

237. Make a written report to the Superintendent of all company freight in car loads, when received, and when unloaded.

238. Under the system of running trains by telegraph, Agents should not be absent from office longer than five minutes without permission from Train Dispatcher, except during meal hours, and then notice should be given.

239. Agents must keep the public outside of their office railings. They must transact their business over the counter or through the ticket window. They will not use their own property in connection with that of the company.

RULES FOR THE MOVEMENT OF TRAINS BY TELEGRAPHIC ORDERS.

500. Special orders, directing movements varying from or additional to the Time-table, will be issued by the authority and over the signature of the Division Superintendent. They are not to be used for movements that can be provided for by rule or Time-table. They must not contain information or instructions not essentially a part of them. They must be brief and clear, and the prescribed forms must be used when applicable; and there must be no erasures, alterations or interlineations.

501. Each order must be given in the same words to all persons or trains directly affected by it, so that each shall have a duplicate of what is given to the others. Preferably an order should include but one specified movement.

502. Orders will be numbered consecutively for each day as issued, beginning with No. 1 at midnight.

503. Orders must be addressed to those who are to execute them, naming the place at which each is to receive his copy. Those for a train must be addressed to the Conductor and Engineman, and also to a person acting as pilot. A copy for each person addressed must be supplied by the Operator.

504. Each order must be written in full in a book provided for the purpose at the Division Superintendent's office; and with it must be recorded the names of Trainmen and others who have signed for the order; the time and signals, showing when and from what offices the order and responses were transmitted; and the Train Dispatcher's initials. These records must be made at once on the original copy, and not afterward, from memory or memoranda.

505. The terms "superior right" and "inferior right" in these rules, refer to the rights of trains under the Time-table and Train Rules, and not to rights under Special Orders.

506. When an order is to be transmitted, the signal "31" (as provided in Rule 509), meaning "Train Order," will be given to each office addressed, followed by the word "copy," and a figure indicating the number of copies to be made, if more or less than three—thus, "31 copy 5."

507. An order to be sent to two or more offices must be transmitted simultaneously to as many as practicable. The several addresses must be in the order of superiority of rights of trains, and each office will take only its proper address. When not sent simultaneously to all, the order must be sent first for the train having the superior right of track.

508. Operators receiving orders must write them out in manifold during transmission and make the requisite number of copies at one writing, or trace others from one of the copies first made.

509. When an order has been transmitted, preceded by the signal "31," Operators receiving it must (unless otherwise directed) repeat it back at once from the manifold copy, and in the succession in which their several offices have been addressed. Each Operator repeating must observe whether the others repeat correctly. After the order has been repeated correctly by the Operators required at the time to repeat it, the response "O K," by the Train Dispatcher, will be sent simultaneously to as many as practicable, naming each office. Each Operator must write this on the order with the time, and then reply "i i O K," with his office signal.

Those to whom the order is addressed, except Enginemen, must then sign their names to the copy of the order to be retained by the Operator, and he will send their signatures to the Division Superintendent. The response "complete," with the Division Superintendent's initials, will then be given by the Train Dispatcher. Each Operator receiving this response will then write on each copy the word "complete," the time, and his last name in full, and will then deliver a copy to each person included in the address except Enginemen, and each must read his copy aloud to the Operator. The copy for each Engineman must be delivered to him personally by the Conductor, and the Engineman must read it aloud and understand it before acting upon it.

510. For an order preceded by the signal "31," "complete" must not be given to the order for delivery to a train of inferior right until "O K" has been given to and acknowledged by the Operator who receives the order for the train of superior right. Whenever practicable, the signature of the Conductor of the train of superior right must be taken to the order and "complete" given before the train of inferior right is allowed to act on it.

After "O K" has been given and acknowledged, and **before** "complete" has been given, the order must be treated as a holding order for the train addressed, but must not be otherwise acted on until "complete" has been given.

If the line fails **before an office has received and acknowledged "O K"** to an order preceded by the signal "31," the order at that office is of no effect, and must be there treated as if it had not been sent.

511. The order, the "O K" and the "complete" must each, in transmitting, be preceded by "31" and the number of the order, thus, "31, No. 10." In transmitting the signatures of a Conductor and Engineman, they must be preceded by "31," the number of the order, and the train number, thus, "31, No. 10, Train No. 5." After each transmission and response the sending Operator must give his office signal.

512. The Operator who receives and delivers an order must preserve the lowest copy. On this must appear the signatures of those who sign for the order, and on it he must record the time when he receives it; the responses; the time when they are received; his own name; the date; and the train number, for which places are provided in the blanks. These copies must be sent to the Division Superintendent.

513. Orders used by Conductors must be sent by them, daily, to the Division Superintendent.

514. Enginemen will place their orders in the clip before them until executed.

515. For orders delivered at the Division Superintendent's office the requirements as to record and delivery will be the same as at other points.

516. Orders to persons in charge of work requiring the use of track in yards or at other points, authorizing such use when trains are late, must be delivered in the same way as to Conductors of trains.

517. An order to be delivered to a train at a point not a telegraph station, or while the office is closed, must be addressed to—

"*C. and E., No.* —— (*at* ——), *care of*——," and forwarded and delivered by the Conductor or other person in whose care it is addressed. "Complete" will be given upon the signature of the person by whom the order is to be delivered, who must be supplied with copies for the Conductor and Engineman addressed, and a copy upon which he shall take their signatures. This copy he must deliver to the first Operator accessible, who must preserve it, and at once advise the Division Superintendent of its having been received.

Orders so delivered to a train must be compared by those receiving them with the copy held by the person delivering and acted on as if "complete" had been given in the ordinary way.

Orders must not be sent in the manner herein provided to trains the rights of which are thereby restricted.

518. When a train is named in an order, all its sections are included unless particular sections are specified, and each section included must have copies addressed and delivered to it.

519. Meeting orders must not be sent for delivery to trains at the meeting point, if it can be avoided. When it cannot be avoided, special precautions must be taken by the Train Dispatchers and Operators to insure safety.

There should be, if possible, at least one telegraph office between those at which opposing trains receive meeting orders.

Orders should not be sent an unnecessarily long time before delivery, or to points unnecessarily distant from where they are to be executed. No orders (except those affecting the train at that point) should be delivered to a freight train at a station where it has much work, until after the work is done.

520. A train, or any section of a train, must be governed strictly by the terms of orders addressed to it, and must not assume rights not conferred by such orders. In all other respects it must be governed by the Train Rules and Time-table.

521. Orders once in effect continue so until fulfilled, superseded or annulled. Orders held by or issued for a regular train which has lost its rights, as provided by Rule 107, are annulled, and other trains will be governed accordingly.

522. A fixed signal must be used at each train-order office which shall display red at all times when there is an Operator on duty, except when changed to white to allow a train to pass after getting orders, or for which there are no orders.

When red is displayed, all trains must come to a full stop, and not proceed as long as red is displayed. The signal must be returned to red as soon as train has passed. It must only be fastened at white when no Operator is on duty. This signal must also display red to hold trains running in the same direction the required time apart. Operators must be prepared with other signals to use promptly if the fixed signals should fail to work properly. If a signal is not displayed at a night office, trains which have not been previously notified must stop and inquire the cause, and report the facts to the Division Superintendent from the next open telegraph office.

The vane of semaphore means white when it is parallel with track.

At stations where there are two or more trains held by the red signal, clearance card, form No. 902, will be issued to the trains for which there are no orders.

523. At stations shown in **full-faced** type, all Conductors must **personally** register their trains.

Conductors of freight and accommodation trains will fill up telegraph train reports, form 901, and leave them at all stations except registering stations. Operators will send these reports by wire, promptly to the Division Superintendent's office.

Operators will report by wire to the Division Superintendent's office the time of arrival and departure of all passenger trains.

524. Regular trains will be designated in orders by their schedule numbers, as "No. 10," or "2nd No. 10;" extra trains by engine numbers, as "Extra 798, Conductor ——," and all other numbers by figures. Time will be stated in words, followed by the figures, thus; seven fifty (7.50). The direction of the movement of extras must be added, as "East" or "West."

525. The following signs and abbreviations may be used:

Initials for Div. Superintendent's signature.

Such office and other signals as are arranged by the Superintendent.

C & E—for Conductor and Engineman.

O K—as provided in these rules.

Min—for Minutes.

Junc—for Junction.

Frt—for Freight.

No—for Number.

Eng—for Engine.

Sec—for Section.

Opr—for Operator.

9—to clear the line for Train Orders, and for Operators to ask for Train Orders.

31—for Train Order as provided in the rule.

The usual abbreviations for the names of the months.

FORMS OF TRAIN ORDERS.

Form A.—Fixing Meeting Points for Opposing Trains.

—— and —— will meet at ——.

EXAMPLES.

No. 1, Condr. ——, *and No.* 2, *Condr.* ——, *will meet at Bombay.*

No. 3, Condr. ——, *and 2nd No. 4, Condr.* ——, *will meet at Siam.*

No. 5, Condr. ——, *and Extra 95, Condr.* ——, *will meet at Hong Kong.*

Extra 652 East, Condr. ——, *and Extra 231 West, Condr.* ——, *will meet at Yokohama.*

Trains receiving this order will, with respect to each other, run to the designated point, and having arrived there will pass in the manner provided by the Rules.

Form B.—Authorizing a Train to Run Ahead of or Pass Another Train Running in the Same Direction.

1. —— Condr. ——, will pass —— Condr. ——, at ——.

2. —— Condr. ——, will run ahead of ——, Condr. ——, from —— (to ——).

EXAMPLES.

1. *No. 1, Condr.* ——, *will pass No. 3, Condr.* ——, *at Khartoum.*

2. *No. 4, Condr.* ——, *will run ahead of No. 6, Condr.* ——, *from Bengal* (*to Madras*).

When under this order a train is to pass another, both trains will run according to rule to the designated point and there arrange for the rear train to pass promptly.

Form C.—Giving a Train of Inferior Right the Right of Track Against an Opposing Train of Superior Right.

[NOTE.—This form of order must not be used when form "A" can be used.]

—— Condr. ——, has right of track against ——, Condr. ——, (——) to ——.

EXAMPLES.

1. *No. 2, Condr.* ——, *has right of track against No. 1, Condr.* ——, (*Mecca*) *to Mirbat.*

2. *Extra 37, Condr.* ——, *has right of track against No. 3, Condr.* ——, (*Natal*) *to Ratlam.*

[NOTE.—The terms "superior right" and "inferior right" here and elsewhere in these Rules, refer to the rights of trains under Time-table and Train Rules, and not to rights under Special Orders.]

This order gives a train of inferior right the right of track against one of superior right, to a designated point.

If the trains meet at the designated point, the train of inferior right must take the siding, unless the rules or orders otherwise indicate.

Under this order, as illustrated by example 1, if the train of superior right reaches the designated point before the other arrives it may proceed, provided it keeps clear of the schedule time of the train of inferior right as many minutes as the inferior train was before required by the Train Rules to keep clear of the superior train.

If the train of superior right, before meeting reaches a point beyond that named in the order, the Conductor must stop the other train where it is met and inform it of his arrival.

Under example 2 the train of superior right cannot go beyond the designated point until the extra train arrives.

When the train of inferior right has reached the designated point, the order is fulfilled, and the train must then be governed by the Time-table and Train Rules or further orders.

The following modification of this form of order will be applicable for giving a work train the right of track over all other trains, in case of a wreck or break in the track:

EXAMPLE.

Work Train Extra 275, Condr. ——, has right of track over all trains between Stockholm and Edinburgh (from 7 p. m.) (——).

This gives the work train exclusive right of the track between the points designated.

Form D.—Giving all Regular Trains the Right of Track Over a Given Train.

All regular trains have right of track against —— (between —— and ——).

EXAMPLE.

All regular trains have right of track against No. 1, Condr. ——, (between Moscow and Berlin).

This order gives to any regular train of inferior right receiving it the right of track over the train named in the order, and the latter must clear the schedule times of all regular trains, the same as if it were an extra.

Form E.—Time Orders.

[NOTE.—This form of order must not be used when form "A" can be used.]

1. —— will run —— late from —— to ——.
2. —— will wait at —— until —— for ——.

EXAMPLES.

1. *No. 1. Condr. ——, will run 20 min. late from Joppa to Mainz.*

2. *No. 1, Condr. ——, will wait at Muscat until 10 a. m. for No. 2, Condr. ——.*

Form 1 makes the schedule time of the train named, between the points mentioned, as much later as the time stated in the order, and any other train receiving the order is required to run with respect to this later time, the same as before required to run with respect to the regular schedule time. The time in the order should be such as can be easily added to the schedule time.

Under Form 2 the train of superior right must not pass the designated point before the time given unless the other train has arrived. The train of inferior right is required to run with respect to the time specified, the same as before required to run with respect to the regular schedule time of the train of superior right.

Form F.—For Sections of Regular Trains.

——will carry signals (——) to——for——.

EXAMPLES.

No. 1, Condr. ——, will carry signals (Astrakhan) to Cabul for Eng. 85, Condr. ——.

2d No. 1, Condr. ——, will carry signals (London) to Dover for Eng. 90, Condr. ——.

This may be modified as follows:

Engines 70, Condr. ——, 85, Condr. ——, and 90, Condr. ——, will run as 1st, 2d and 3d sections of No. 1 (London) to Dover.

For annulling a section:

Eng. 85, Condr. ——, is annulled as (second) section of No. 1 (from Dover).

If there are other sections following, add:

Following sections will change numbers accordingly.

The character of train for which signals are carried may be stated. Each section affected by the order must have copies, and must arrange signals accordingly.

Form G.—For Arranging a Schedule for a Special Train.

1. Eng. ——, Condr. —— will run as special (—— train), leaving —— on —— on the following schedule, and will have the right of track over all trains:

Leave ——.
——.
Arrive ——.

EXAMPLE.

1. *Eng. 77, Condr. ——, will run as special (passenger train), leaving Turin on Thursday, Feb. 17th, on the following schedule, and will have the right of track over all trains:*

Leave Turin 11:30 p. m.
Pekin 12:25 a. m.
Canton 1:47 a. m.
Arrive Rome 2:22 a. m.

Example 1 may be varied by specifying particular trains over which the special shall or shall not have right of track, and any train over which the special train is thus given the right of track must clear its time as many minutes as such train is required to clear the schedule time of a first-class train.

2. Eng. ——, Condr. ——, will run as special (—— train), leaving —— on —— with the rights of a —— class train (——), on the following schedule, which is a supplement to Time-table No. —.

Leave ——.
——.
Arrive ——.

EXAMPLE.

2. *Eng. 75, Condr. ——, will run as special (passenger train), leaving Geneva, Thursday, Feb. 17th, with the rights of a (first) class train (east) on the following schedule, which is a supplement to Time-table No. 10:*

Leave Geneva 10 a. m.
Pekin 10:30 a. m., passing No. 12.
Canton 11 a. m., meeting No. 7.
Arrive Athens 11:30 a. m.

Example (2) creates a regular train, and the specified meeting and passing points are to be regarded as if designated in the same manner as on the Time-table. Such trains will be governed by all rules which effect regular trains.

Form H.—Extra Trains.

—— Condr. ——, will run extra from —— to ——.

EXAMPLE.

(*a*) *Eng. 99, Condr. ——, will run extra from Berber to Gaza.*

A train receiving an order to run extra is not required to guard against opposing extras, unless directed by order to do so, but must keep clear of all regular trains as required by rule.

A "work train" is an extra, for which the above form will be used for a direct run in one direction. The authority to occupy a specified portion of the track, as an extra while working, will be given in the following form:

(*b*) *Eng. 292, Condr. ——, will work as an extra from (7 a. m.) (until 6 p. m.) between Berne and Turin.*

The working limits should be short as practicable, to be changed as the progress of the work may require. The above may be combined, thus:

(*c*) *Eng. 292, Condr. ——, will run extra (from Berne) to Turin and work as an extra from 7 a. m. until 6 p. m. between Turin and Rome.*

When an order has been given to "work" between designated points, no other extra must be authorized to run over that part of the track without provision for passing the work train.

When it is anticipated that a work train may be where it cannot be reached for meeting or passing orders, it may be directed to report for orders at a given time and place, or an order may be given that it shall clear the track for a designated extra, in the following form:

(*d*) *Work Train 292, Condr. ——, will keep clear of Extra 223, west, Condr. ——, between Antwerp and Brussels, after 2:10 p. m.*

In this case, Extra 223 must not pass either of the points named before 2:10 p. m., at which time the work train must be out of the way between those points.

When the movement of an extra train over the working limits can not be anticipated by these or other orders to the work train, an order must be given to such extra to protect itself against the work train, in the following form:

(*e*) *Extra 76, Condr.* ——, *will protect itself against Work Train Extra 95, Condr.* ——, *between Lyons and Paris.*

This may be added to the order to run extra.

A work train, when met or overtaken by an extra, must allow it to pass without unnecessary detention.

When the conditions are such that it may be considered desirable to require that work trains shall at all times protect themselves while on working limits, this may be done under the following arrangements. To example (*b*) add the following words:

(*f*) *protecting itself against all trains.*

A train receiving this order must, whether standing or moving, protect itself within the working limits (and in both directions on single track) against all trains, in the manner provided in Rule 99.

When an extra receives orders to run over working limits it must be advised that the work train is within those limits by adding to example (*a*) the words:

(*g*) *Eng. 292, Condr.* ——, *is working as an extra between Berne and Turin.*

A train receiving this order must run expecting to find the work train within the limits named.

Form J.—Holding Order.

Hold ——.

EXAMPLES.

1. *Hold No. 2.*
2. *Hold all trains (east).*

As any order for which "O. K." has been given and acknowledged operates as a holding order for the train to which it is addressed, this form will only be used in special cases, to hold trains until orders can be given or for some other emergency. The reason for holding may be added; as, "for orders."

This order is not to be used for holding a train while orders are given to other trains against it, which are not at the same time given to it in duplicate. It must be respected by Conductors and Enginemen of trains thereby directed to be held as if addressed to them. Conductors, when informed of the order, must sign for it, and their signatures must be sent and "complete" obtained.

When a train has been so held, it must not go until the order to hold is annulled, or an order is given in the form, "—— may go." This must be addressed to the person or persons to whom the order to hold was addressed, and must be delivered in the same manner.

Form K.—Annulling a Schedule Train.

—— of —— is annulled.

EXAMPLES.

1. *No. 1 of Feb. 29th is annulled.*
2. *No. 3, due to leave Naples Saturday, Feb. 29th, is annulled.*

Adding "*from (Alaska),*" or "*between (Alaska) and (Halifax),*" when appropriate.

This order takes away all rights of the train annulled, and authorizes any train or person receiving it to use the track as if the train annulled were not on the Time-table.

If a train is annulled to a point named, its rights beyond that point remain unaffected.

The Train Dispatcher may direct any Operator to omit repeating back an order annulling a train until he has occasion to deliver it.

When a train has been annulled, it must not be again restored under its original number by special order.

Form L.—Annulling or Superseding an Order.

"Order No.—— is annulled."

This will be numbered, transmitted and signed for as other orders.

If an order which is to be annulled has not been delivered to a train, the annulling order will be addressed to the Operator, who will destroy all copies of the order annulled but his own, and write on that:

Annulled by Order No. ——.

An order superseding another may be given, adding: "*This supersedes Order No.* ——," or adding, "*instead of* ——."

EXAMPLE.

No. 1, Condr. ——, *and No. 2, Condr.* ——, *will meet at Sparta, instead of at Thebes.*

An order which includes more than one specified movement must not be superseded.

An order that has been annulled or superseded must not be again restored by special order under its original number.

In the address of an order annulling or superseding another order, the train first named must be that to which rights were given by the order annulled or superseded, and when the order is not transmitted simultaneously to all concerned, it must be sent to the point at which that train is to receive it, and the required response first given, before the order is sent for other trains.

SECTIONMEN AND BRIDGEMEN.

600. Section Foreman, or reliable men, must pass over and examine their sections daily, and ascertain that the track, slopes, cuts and bridges are safe. This should be done in the morning.

601. They must see that no lumber, wood, stone, materials or tools are placed at any time within six feet of the rail.

602. Before a rail or frog is taken out, or any obstruction is caused to the main track, or when any break or obstruction is discovered, the danger signal must be sent out in both directions, at least **twenty** telegraph poles from the point of danger, and a competent man must remain and keep it displayed until he is recalled by the Foreman, which must not be done until the track is known to be safe.

603. In stormy weather, Section Foremen must be out with their men (day or night), with proper signals, and watch those places most liable to wash or be disturbed.

604. It is also the duty of Trackmen to put out fires set by engines, and to guard the property of others, as well as that of the Railway Company, exposed to such fires, whether responsibility attaches to the Company or not.

605. Sectionmen will pay particular attention to the telegraph lines. In case the wires are found broken or on the ground, crossed, or in any way obstructed, they must be repaired in a temporary manner **immediately**, and where such repairs are impracticable, notice must be given to the nearest telegraph office by messenger or the earliest means practicable.

606. At all times when work is going on which renders it necessary for trains to reduce speed,

a green flag must be set at side of track at least **twenty** telegraph poles from the spot, on Engineman's side, in each direction, as a caution to approaching trains to run slowly. After severe rains or a thaw, a hand car must be sent over the road before the passage of regular trains.

607. Hand cars or other property belonging to the Company, must not be used except for the business of the Company.

608. Sectionmen must, at all times, hold themselves in readiness to aid the passage of trains, and in case of accident, must obey the orders of the Conductor of the delayed train.

609. Every man at work on the track must bear in mind that in operating the road under telegraph orders a train may pass at any moment.

610. Section Foremen must see that their gangs are always supplied with proper signal flags, lanterns, etc., and that they are thoroughly instructed as to their use.

611. Section Foremen must see that fences on each side of the road and at crossings are in good order and that cattle guards are in repair. A break in a fence should not be overlooked, and when it can not be repaired for want of material the Section Foreman must give the Roadmaster immediate notice of it, stating what material is required. When fences are taken down for any purpose they must be replaced without unnecessary delay.

BAKER HEATERS.

To insure satisfactory results in the use of the heater, the following instructions must be observed:

The heater should be kept half full of coal at all times. The coal should never be allowed to get below top of worm. This will give about fifteen inches of fire.

The inside safety lid should never be opened except to build the fire or put in coal. (Never force the fire by opening inside safety lid.)

To increase the heat, open inside lower damper, and close upper damper.

To reduce the heat, close the lower damper and open the upper damper about two inches, or according to amount of heat required. With both dampers closed the car will not be too warm at any time, and by proper working of the lower and the upper dampers, and watching the indicator, the car can be kept at any temperature desired.

Failure of the heater arises from neglect or mismanagement, generally from allowing fires to run too long without putting in coal, then filling them full and operating the drafts, producing a rapid fire, which instead of warming the car, stops the circulation, and creates gasses, which are liable to explode.

It will be readily understood that with the large amount of piping in the cars, the circulation (which is principally caused by the weight of the column of water falling from the drum into the pipes, and the difference in the weight of a column of cold and hot water,) must be necessarily slow, and that a forced fire will do no good, but will only cause the effect mentioned above.

In filling the heater pipes, be sure that the water contains all the salt it will hold in solution, and that no undissolved salt enters the drum. Open the combination cock on end of drum and pour in water until it runs freely from same. The water should always stand at the height of combination cock, which may be tried by opening the cock, but only when the fire is very low and no pressure on. Pipes should be warm all round before passengers enter the car.

Passenger cars having Baker heaters must be turned so that heater will be in forward end of car, when practicable.

AUTOMATIC AIR BRAKE.

ENGINEMEN.

1. Fill the oil cup on the pipe leading to the steam cylinder, with cylinder oil; open the cock in the bottom half a turn; this will lubricate the steam cylinder. Kerosene oil must not be used for oiling cylinders.

2. Start the pump gradually, to allow the condensed steam to escape.

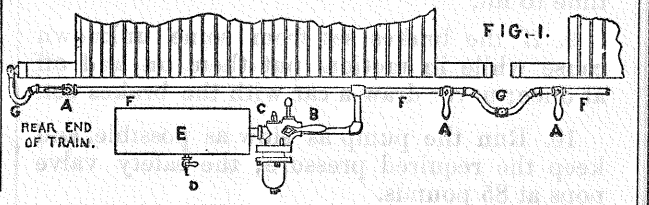
3. Always have a pressure of 80 pounds in main reservoir before connecting to train. Before connecting keep brake valve at lap to prevent tank brake sticking.

4. In filling the reservoirs under the cars with air, the handle on the two-way cock must be turned to the left; this takes the air already pumped in the main reservoir, reduces pressure, and causes the pump to work more rapidly, until the gauge again indicates 80 pounds; the handle must then be turned to the right, so that the spring fits in the notch.

5. The brake is applied by turning the handle of the brake valve to right from notch and exhausting from three to twenty pounds of air.

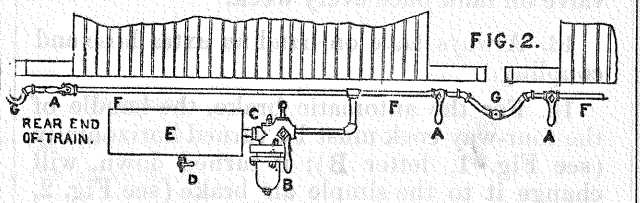
6. Before taking on extra cars carry handle of brake valve at lap to obtain an extra pressure in main reservoir. After coupling again turn handle to left to fill reservoirs. After this is done, it is a good plan to apply the brakes and release them at once. By the lap is meant the position of the handle of brake valve immediately to the right of running notch.

The Westinghouse Automatic Brake.



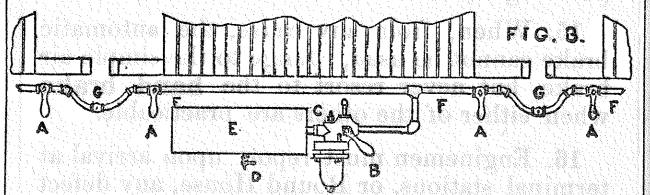
EXPLANATION.—A A, Stop Cocks in Main Brake Pipe. B. Four-way Cock Handle. C, Triple Valve. D, Release Cock in Auxiliary Reservoir. E, Auxiliary Reservoir. F F, Main Brake Pipe. G G, Hose and Couplings.

The Westinghouse Straight Air Brake.



EXPLANATION.—A A, Stop Cocks in Main Brake Pipe. B, Four-way Cock Handle. C, Triple Valve. D, Release Cock in Auxiliary Reservoir. E, Auxiliary Reservoir. F F, Main Brake Pipe. G G, Hose and Couplings.

Air Shut Off from Brakes on this Car.



EXPLANATION.—A A, Stop Cocks in Main Brake Pipe. B, Four-way Cock Handle. C, Triple Valve. D, Release Cock in Auxiliary Reservoir. E, Auxiliary Reservoir. F F, Main Brake Pipe. G, G, Hose and Couplings.

7. In making stops at stations, exhaust small quantities of air at a time; by so doing you reserve the air and bring the train to a stop gradually—releasing the brakes about the last revolution of the driving wheels (as near as you can judge); by so doing you avoid those lurches noticeable in stopping a train with the power brake.

8. Avoid as far as possible applying the brake twice; that is, if on the first application you find you are going to stop too soon, and you let them off to run a little farther; this second application will not be as strong as the first, because the reservoirs have not had sufficient time to fill.

9. If the brakes set from some unknown cause while in motion, put them on and off at once; never draw a car with the brakes set.

10. Run the pump as slow as possible, and keep the required pressure; the safety valve pops at 85 pounds.

11. Never use the brake in switching trains, or when Brakemen are expected to brake.

12. Open drain on discharge pipe every day to let out water. Open drain cock on main reservoir and slack nut on bottom of triple valve on tank once every week.

13. Always have on hand an extra hose and coupling.

14. For the automatic brake, the handle of the four-way cock must be turned horizontally (see Fig. 1, letter **B**); if turned down, will change it to the simple air brake (see Fig. 2, letter **B**); if turned midway between these two positions, it will close communication with the brake cylinder and reservoir, and should be so turned when desirable to have the brakes out of use on any particular car, from breaking of rods, etc. This applies to tenders and cars. (See Fig. 3, letter **B**.)

15. When, from any cause, the automatic brake cannot be used, change to the simple air brake, but never resort to the **hand brake** when either of the others are practicable.

16. Enginemen must report upon arrival at terminal stations, or Round House, any defect in the working of their engine-valve and pump, etc., that it may be repaired at once.

17. The Enginemen should immediately, on feeling the brakes applied, turn the handle of the Engineman's brake valve to top so as to maintain the pressure in the main reservoir, which is all important. He should observe his gauge, and if he sees that all of the air has escaped, he will know that a pipe has burst, or that the Conductor's Valve has been opened and held open. If the pressure is only reduced sufficiently to apply the brakes, and the reduction then ceases, he will know that the Conductor's Valve has been opened long enough to cause the stoppage of the train, and has been closed. In this case he can easily release the brakes in the usual way upon receiving the proper signal from the Conductor.

The Engineer should warn the Trainmen, when the brakes have been applied in such a manner that they cannot be released from the engine, by giving a succession of short double whistles.

TRAINMEN.

18. In making up trains, all the couplings must be united, so that the brakes will apply throughout the entire train. The cocks in the brake pipe must all be opened (handles pointing down) except that on the rear of the last car, which must be horizontal, and the coupling hung up in the bracket. (See Fig. 1, letters **A** and **G**.)

19. In detaching engines or cars, the couplings must invariably be parted by hand; the cocks in the brake pipe must always be closed before separating the couplings, to prevent application of the brakes.

20. At stations where it may be necessary to cut the train, to take or leave cars, Trainmen must not turn the stop cock or disconnect hose until the brakes have been released by the Engineman.

21. If the brakes are applied when the engine is not attached they can be released by opening the release cock in the end of brake cylinder; or, if a freight brake, by turning handle of triple valve to position shown at **B**, Fig. 3, until the brake is released.

22. The valve for the application of the brakes from the inside of the car should be kept tight, and must always be examined when the car is standing at terminal stations. This valve should only be used in case of emergency.

23. The brakes must be applied while standing at terminal stations, and inspected by the Brakemen, to see that all cars are in working order. Conductors will see that this test is made, and when trains start from points at which no Inspectors are located, they must make the test in place of Inspectors, as per Inspector's rule number 31.

24. If the packing in the couplings freeze so as to leak, thaw them out with a torch.

25. Report to Inspectors any car not in working order.

26. Keep the hose coupled together or hung up in the bracket provided for that purpose, when not in use.

INSPECTORS.

27. The adjustment of the brakes should be such that, when applied, the pistons will not travel more than eight or nine inches, if passenger, or six or seven inches, if freight.

28. Great care must be exercised in taking up the slack in connections, to have the levers and pistons pushed back to their proper places, and the slack taken up by the under connections or dead lever.

29. The brake cylinders must be kept free from gum so that they will readily release when air has been discharged. Clean and oil once in three months and mark the date of oiling on cylinder with chalk.

30. In damp weather the triple valve should be drained daily, to let out any water that may have collected. Slack the bottom nut about half a turn, let the water escape, and screw it up again; if there is a petcock, draw through that.

31. The Inspectors will examine each car throughout the entire train, when Engineman applies the brakes, to see that the brakes have applied properly, and if all is right, will signal the Engineman, who will release them.

32. Inspectors will be held responsible for trains leaving stations with the air brakes not in perfect working order.

33. Inspectors at all points must keep on hand, ready for immediate use, a supply of all parts that are liable to get out of repair, as well as tools necessary for making repairs.

Enginemen will report promptly to Division Master Mechanic any neglect of Inspectors to comply with the above rules.

(820)

Atlantic & Pacific Railroad Company.

(WESTERN DIVISION.)

CLEARANCE CARD.

Dover, 9:15 A. M. March 25, *188* 7.

Conductor and Engineman No. 12.

I have no orders for your train. Signal is out for No. 16.

John Jones, *Operator.*

This does not interfere with or countermand any orders you may have received.

Conductor MUST SEE that the number of HIS TRAIN is entered in the above form correctly.

Conductor and Engineman must each have a copy.

BOUND HERE.

PERFORATED LINE.

Atlantic & Pacific Railroad Company.

(WESTERN DIVISION.)

TELEGRAPHIC TRAIN ORDER NO. .....

Division Superintendent's Office, ... MARCH 27, ... *188* 5.

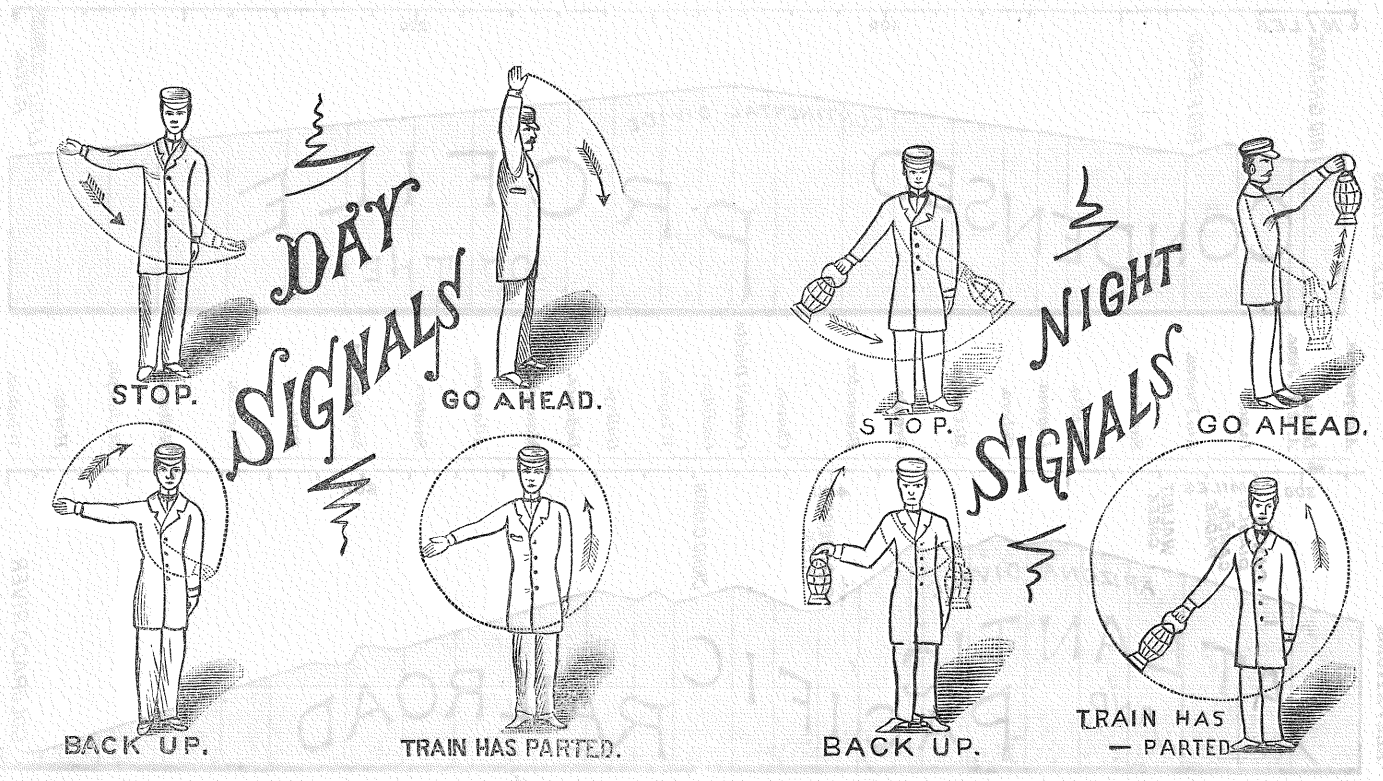
FORM **31.** *For* STATION ..... *to* C. & E. ..... *of* No. 13. FORM **31.**

CONDUCTOR AND ENGINEMAN MUST EACH HAVE A COPY OF THIS FORM.

Time received ..... 2:15 A *M.* O. K. *given at* ..... 2:16 A. *M.*

CONDUCTOR.	TRAIN.	MADE.	AT.	RECEIVED BY.
Jones.	13	Complete.	2:20	Dennison.

16 R.

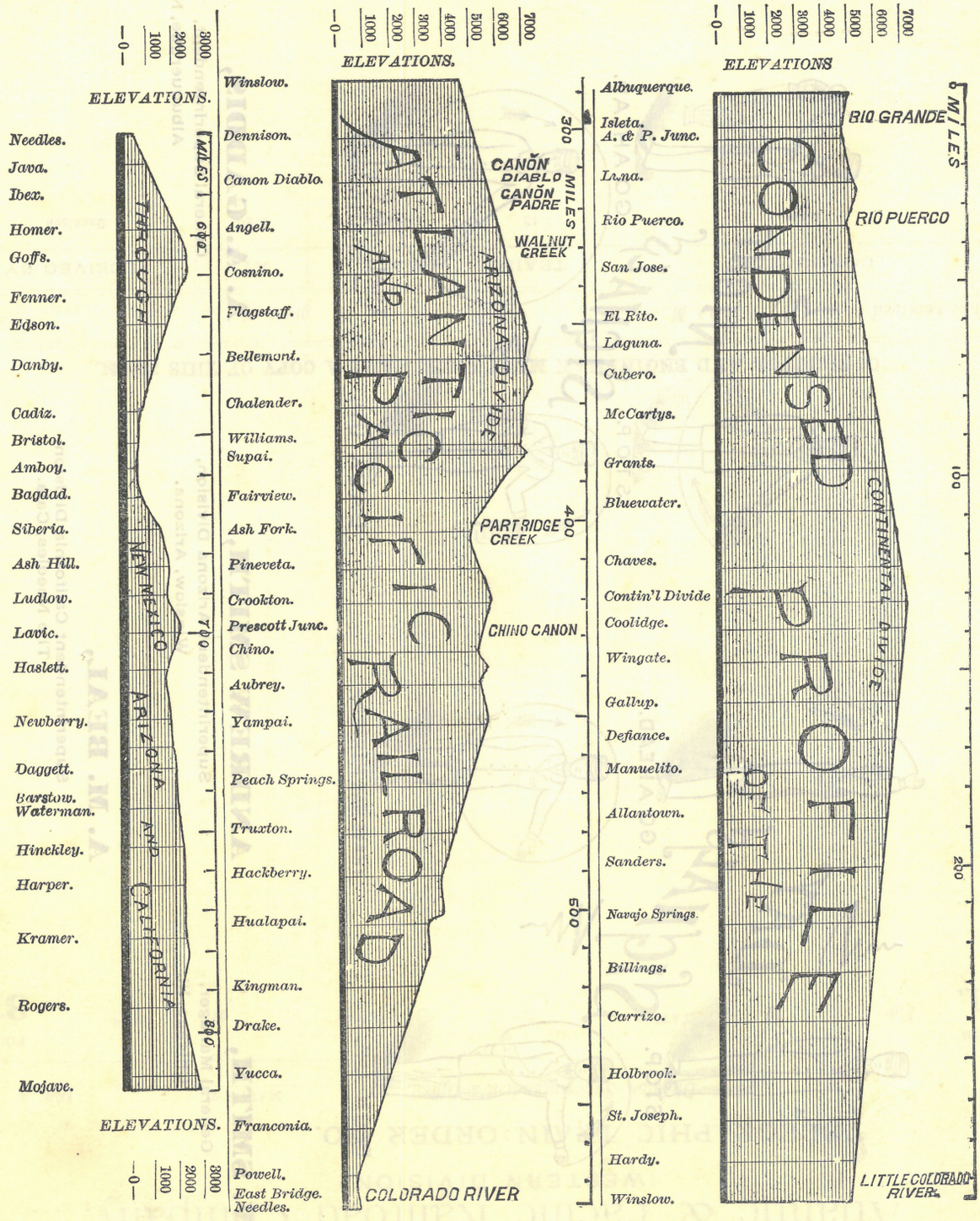


C. W. SMITH,
General Manager,
Chicago, Ill.

ANDREW SMITH,
Superintendent Arizona Division,
Winslow, Arizona.

A. A. GADDIS,
General Superintendent,
Albuquerque, N. M.

A. M. BEAL,
Superintendent California Division,
The Needles, Cala.


ELEVATIONS.
0 1000 2000 3000
Needles.
Java.
Ibex.
Homer.
Goffs.
Fenner.
Edson.
Danby.
Cadiz.
Bristol.
Amboy.
Bagdad.
Siberia.
Ash Hill.
Ludlow.
Lavic.
Haslett.
Newberry.
Daggett.
Barstow.
Waterman.
Hinckley.
Harper.
Kramer.
Rogers.
Mojave.
MILES
100
200
700
800
THROUGH NEW MEXICO ARIZONA AND CALIFORNIA
ELEVATIONS.
0 1000 2000 3000
Winslow.
Dennison.
Canon Diablo.
Angell.
Cosnino.
Flagstaff.
Bellemont.
Chalender.
Williams.
Supai.
Fairview.
Ash Fork.
Pineveta.
Crookton.
Prescott Junc.
Chino.
Aubrey.
Yampai.
Peach Springs.
Truxton.
Hackberry.
Hualapai.
Kingman.
Drake.
Yucca.
Franconia.
Powell.
East Bridge.
Needles.
ATLANTIC AND PACIFIC RAILROAD
ARIZONA DIVIDE
ELEVATIONS.
0 1000 2000 3000 4000 5000 6000 7000
CANON DIABLO
CANON PADRE
WALNUT CREEK
PARTRIDGE CREEK
CHINO CANON
COLORADO RIVER
300
400
500
MILES
Albuquerque.
Isleta.
A. & P. Junc.
Luna.
Rio Puerco.
San Jose.
El Rito.
Laguna.
Cubero.
McCartys.
Grants.
Bluewater.
Chaves.
Contin'l Divide
Coolidge.
Wingate.
Gallup.
Defiance.
Manuelito.
Allantown.
Sanders.
Navajo Springs.
Billings.
Carrizo.
Holbrook.
St. Joseph.
Hardy.
Winslow.
ELEVATIONS
0 1000 2000 3000 4000 5000 6000 7000
RIO GRANDE
RIO PUERCO
CONTINENTAL DIVIDE
LITTLE COLORADO RIVER.
0 MILES
100
200
CONDENSED PROFILE OF LINE

18 R.