

INTERSTATE COMMERCE COMMISSION

FIFTEENTH ANNUAL REPORT
OF THE
CHIEF INSPECTOR
BUREAU OF LOCOMOTIVE INSPECTION
TO THE
INTERSTATE COMMERCE COMMISSION

FISCAL YEAR ENDED
JUNE 30, 1926



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ANNUAL REPORT OF THE CHIEF INSPECTOR BUREAU OF LOCOMOTIVE INSPECTION

OCTOBER 1, 1926.

To the Interstate Commerce Commission:

In compliance with section 7 of the act of February 17, 1911, as amended, the Fifteenth Annual Report of the Chief Inspector covering the work of the bureau during the fiscal year ended June 30, 1926, is respectfully submitted.

A synopsis is given, by railroads, of all accidents, showing the number of persons killed and injured due to the failure of parts and appurtenances of the locomotive and tender, including the boiler, as reported and investigated under section 8 of the locomotive inspection law, and those reported to the Bureau of Statistics under the accident report act of May, 1910, and not reported to this bureau as should have been.

The data contained herein cover all defects on all parts and appurtenances of the locomotive and tender, including the boiler, found and reported by our inspectors, arranged by railroads.

The tables show the number of accidents, the number of persons killed and number injured as a result of the failure of parts and appurtenances of the locomotive and tender, including the boiler.

Tables have been arranged so as to permit comparison with previous years as far as consistent and also show the number of locomotives inspected, the number and percentage of those inspected and found defective, the number for which written notices for repairs were issued in accordance with section 6 of the law withholding them from service because of being in violation of the law, and the total defects found and reported.

TABLE I.—*Locomotive reports and inspections*

	1926	1925	1924	1923	1922
Number of locomotives for which reports were filed.....	69, 173	70, 361	70, 683	70, 242	70, 070
Number inspected.....	90, 475	72, 279	67, 507	63, 657	64, 354
Number found defective.....	36, 354	32, 989	36, 098	41, 150	30, 978
Percentage inspected found defective.....	40	46	53	65	48
Number ordered out of service.....	3, 281	3, 637	5, 764	7, 075	3, 089
Total number of defects found.....	136, 973	129, 239	146, 121	173, 840	101, 734

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REPORT OF CHIEF INSPECTOR OF LOCOMOTIVES

TABLE II.—Accidents and casualties caused by failure of some part of the motive, including boiler, or tender

Table with 6 columns: Part or appurtenance, Year ended June 30 (1926, 1925, 1924, 1923, 1922) and rows for accidents, increase/decrease, persons killed, and persons injured.

1 Increase.

TABLE III.—Accidents and casualties caused by failure of some part or appurtenance of the locomotive boiler1

Table with 6 columns: Part or appurtenance, Year ended June 30 (1926, 1925, 1924, 1915, 1912) and rows for accidents, persons killed, and persons injured.

1 The original act applied only to the locomotive boiler.

TABLE IV.—Derailments and casualties caused by defects in or failure of some part of the locomotive or tender

Table with 6 columns: Part or appurtenance, Year ended June 30 (1926, 1925, 1924, 1923, 1922) and rows for derailments, persons killed, and persons injured.

1 Only derailments reported by carriers as being caused by defect in or failure of parts of the locomotive or tender were investigated or counted.

TABLE V.—Number of casualties classified according to occupation

Large table with columns for years (1926-1922) and rows for various occupations (Engineers, Firemen, etc.) and total counts for killed and injured.

REPORT OF CHIEF INSPECTOR OF LOCOMOTIVES

TABLE VI.—Accidents and casualties resulting from failures of locomotives and tenders and their appurtenances

Large table with columns for years (1926-1922) and rows for various parts/appurtenances (Air reservoirs, Aprons, Arch tubes, etc.) and total counts for accidents, killed, and injured.

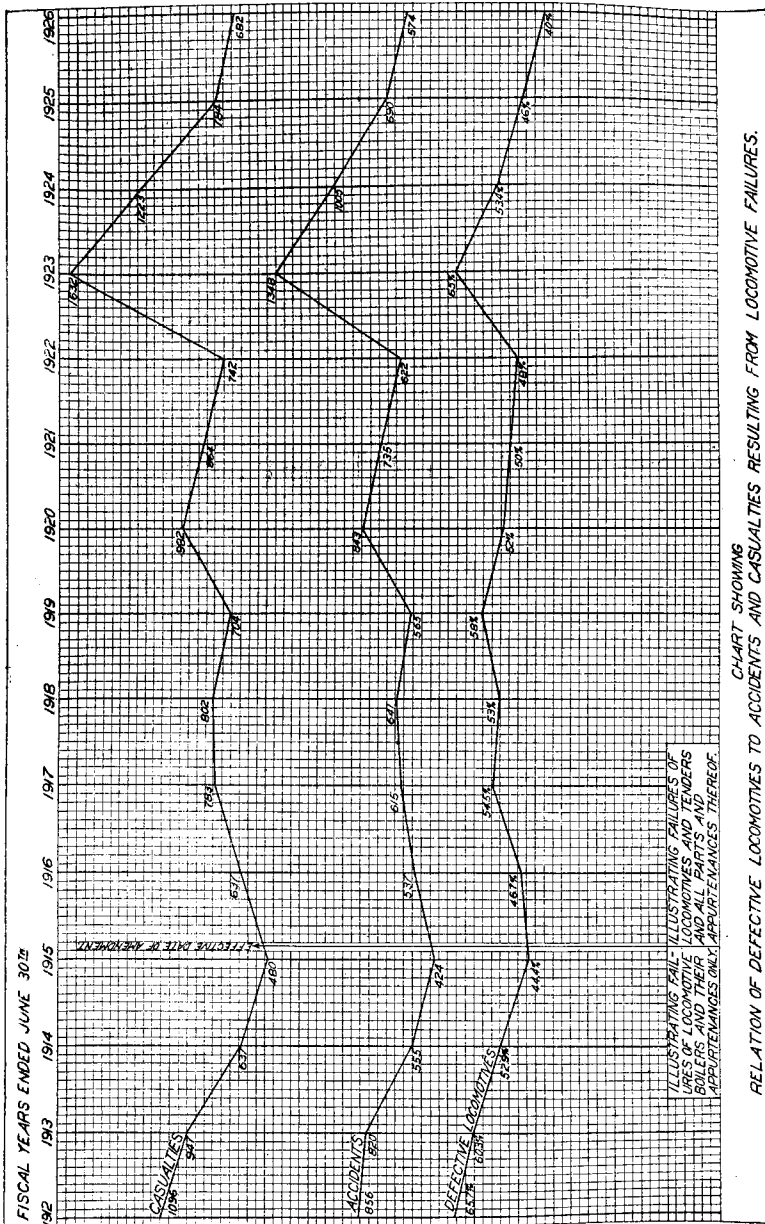


TABLE VII.—Number of locomotives reported, inspected, found defective, and ordered from service

Parts defective, inoperative or missing, or in violation of rules	Fiscal years ended June 30—				
	1926	1925	1924	1923	1922
1. Air compressors.....	2,151	1,574	1,221	1,390	971
2. Arch tubes.....	204	198	272	468	151
3. Ash pans or mechanism.....	211	216	257	306	161
4. Axles.....	8	14	19	21	15
5. Blow-off cocks.....	280	825	965	1,578	975
6. Boiler checks.....	1,200	991	1,329	1,913	949
7. Boiler shell.....	1,888	1,597	2,103	2,370	1,598
8. Brake equipment.....	7,062	6,497	6,920	8,213	4,577
9. Cabs or cab windows.....	2,666	2,541	1,627	1,423	1,276
10. Cab aprons or decks.....	1,307	1,165	1,293	1,476	1,098
11. Cab cards.....	696	665	758	1,449	567
12. Coupling or uncoupling devices.....	394	447	398	634	423
13. Crossheads, guides, pistons, or piston rods.....	3,018	2,922	3,577	5,527	1,020
14. Crown bolts.....	334	283	418	630	331
15. Cylinders, saddles, or steam chests.....	5,080	4,352	5,712	4,875	3,234
16. Cylinder cocks or rigging.....	1,904	1,801	2,376	1,745	1,201
17. Dome or dome caps.....	463	371	494	626	331
18. Draft gear.....	2,634	2,283	1,981	2,613	1,526
19. Draw gear.....	3,140	3,273	4,160	4,513	3,042
20. Driving boxes, shoes, wedges, pedestals, or braces.....	3,342	3,241	3,722	4,269	2,776
21. Fire-box sheets.....	1,129	1,152	1,471	2,327	1,191
22. Flues.....	556	524	698	1,268	521
23. Frames, tail pieces, or braces, locomotive.....	1,973	2,036	2,580	2,683	2,078
24. Frames, tender.....	373	391	414	540	352
25. Gauges or gauge fittings, air.....	886	694	626	1,062	399
26. Gauges or gauge fittings, steam.....	2,038	1,809	2,026	3,075	1,595
27. Gauge cocks.....	3,068	3,081	3,335	5,895	3,275
28. Grate shakers.....	720	832	1,006	569	425
29. Handholds.....	3,100	2,831	2,241	1,990	1,533
30. Injectors, inoperative.....	78	70	94	251	94
31. Injectors and connections.....	8,303	8,064	9,085	12,406	7,741
32. Inspections or tests not made as required.....	10,646	10,436	9,740	7,419	4,114
33. Lateral motion.....	758	659	939	1,625	976
34. Lights, cab or classification.....	106	86	72	90	80
35. Lights, headlight.....	946	928	904	1,164	705
36. Lubricator or shields.....	883	704	565	566	456
37. Mud rings.....	1,458	1,384	1,901	2,711	1,598
38. Packing nuts.....	2,772	2,761	3,304	4,755	3,151
39. Packing, piston rod and valve stem.....	2,489	2,411	3,187	3,359	1,756
40. Pilot or pilot beams.....	638	832	967	1,294	679
41. Plugs or studs.....	1,087	949	1,026	857	443
42. Reversing gear.....	1,539	1,274	1,217	1,272	789
43. Rods, main or side, crank pins or collars.....	5,683	4,813	6,507	10,080	3,915
44. Safety valves.....	270	234	188	192	162
45. Sanders.....	1,769	2,004	1,806	1,857	1,165
46. Springs or spring rigging.....	6,826	5,532	6,335	7,911	5,497
47. Squirt hose.....	975	1,008	1,221	1,098	935
48. Staybolts.....	905	741	916	1,313	722
49. Staybolts, broken.....	3,582	3,745	5,320	10,089	4,261
50. Steam pipes.....	1,587	1,590	2,305	2,467	1,461
51. Steam valves.....	962	869	981	1,168	791
52. Steps.....	3,227	2,867	3,289	3,788	2,038
53. Tanks or tank valves.....	3,430	3,352	3,393	3,788	2,817
54. Telltale holes.....	487	451	620	715	630
55. Throttle or throttle rigging.....	2,618	2,403	2,868	2,633	1,880
56. Trucks, engine or trailing.....	2,860	2,966	3,425	3,899	2,467
57. Trucks, tender.....	4,929	5,372	5,977	3,714	2,551
58. Valve motion.....	1,576	1,250	1,269	1,761	710
59. Washout plugs.....	3,649	3,588	3,204	3,641	2,449
60. Water-bars or combustion flues.....	44	19	18	24	57
61. Water-glass, fittings, or shields.....	3,621	3,713	4,201	5,641	3,640
62. Wheels.....	2,243	2,148	2,996	4,371	2,410
63. Miscellaneous—Signal appliances, badge plates, brakes (hand).....	1,702	1,510	1,342	972	403
Total number of defects.....	136,973	129,239	146,121	173,840	101,734
Locomotives reported.....	69,173	70,361	70,683	70,242	70,070
Locomotives inspected.....	90,475	72,279	67,507	63,657	64,354
Locomotives defective.....	36,354	32,989	36,098	41,150	30,978
Percentage inspected found defective.....	40	46	53	65	48
Locomotives ordered out of service.....	3,281	3,637	5,764	7,075	3,089

INVESTIGATION OF ACCIDENTS

All accidents reported to this bureau, as required by the law and rules, were carefully investigated and action taken to prevent recurrences as far as possible. Copies of accident investigation reports were furnished to parties interested when requested, and otherwise used in an endeavor to bring about a decrease in the number of accidents.

A summary of all accidents and casualties to persons as compared with the previous year shows a decrease of 16.8 per cent in the number of accidents, an increase of 10 per cent in the number of persons killed, and a decrease of 13.6 per cent in the number injured during the year. There was also a substantial decrease in the percentage of locomotives inspected by our inspectors found defective. During the year 40 per cent of the locomotives inspected were found with defects or errors in inspection that should have been corrected before being put in use as compared with 46 per cent for the previous year and 53 per cent for the fiscal year ended June 30, 1924.

While there was a substantial decrease in the total number of accidents during the year, our investigations indicate that a still greater decrease should have resulted had the requirements of the law and rules been complied with, especially so with respect to defects the repair of which are frequently considered unimportant.

Boiler explosions caused by crown-sheet failures continue to be the most prolific source of serious and fatal accidents with which we have to deal, 72.7 per cent of the fatalities during the year being attributable to this cause. The importance of properly maintaining water-level indicating appliances that will accurately register the water level in the boiler under all conditions of service, and which may be easily and accurately observed by the occupants of the locomotive cab from their usual and proper positions, can not be overemphasized. The use of the strongest practicable fire-box construction, especially within the area which may be exposed to overheating due to low water, and the application of a device that will give an audible alarm when the water level approaches the danger point, would be distinct steps forward in the reduction of accidents and casualties resulting from crown-sheet failures. Further reference is made to audible low-water alarms elsewhere in this report.

Table VI shows the various parts and appurtenances of the locomotive and tender which through failure have caused serious and fatal accidents which if taken advantage of and proper inspections and repairs are made in accordance with the spirit and intent of the

law and rules a large portion of such accidents can be avoided. The graphic chart on page 4 shows the relation between the percentage of defective locomotives and the number of accidents and casualties to persons resulting from failure thereof, and illustrates the effect of operating locomotives in a defective condition from the viewpoint of safety.

REDUCED BODY STAY BOLTS

Our investigations of reduced body stay-bolt breakage show that failure most frequently occurs in the reduced body at or close to the fillet joining the body of the bolt and the enlarged ends, and telltale holes which do not extend into the reduced section at least five-eighths of an inch can not be depended upon to indicate broken bolts.

A great majority of broken stay bolts are found by leakage through telltale holes without the aid of the hammer test. The sound and vibration when stay bolts are hammer tested varies with the location of the bolts in the fire box and also with the shape of the fire box. Inspectors depend upon the telltale holes as a check of the results of the hammer test. If the telltale holes do not extend into the bolts to or beyond the usual point of breakage, they are not only useless as a safety feature but become a distinct menace to safety.

Especial attention is directed to the illustrations on pages 72 and 73 which show typical failures of reduced body stay bolts.

EXTENSION OF TIME FOR REMOVAL OF FLUES

One hundred and twenty-six applications were filed for extension of time for removal of flues, as provided in Rule 10. Investigation disclosed that in 12 of these cases the condition of the locomotives was such that no extension could properly be granted. Twelve were in such condition that the full extension requested could not be authorized, but an extension for a shorter period was allowed. Twenty extensions were granted after defects disclosed by investigation had been repaired; 13 applications were canceled for various reasons; 69 extensions granted for the full period requested.

SPECIFICATION CARDS AND ALTERATION REPORTS

Under Rule 54, 1,860 specification cards and 10,378 alteration reports were filed, checked, and analyzed. These reports are necessary in order to determine whether or not the boilers represented were so constructed or repaired as to render safe and proper service and whether the stresses were within the allowed limits. Corrective measures were taken with respect to numerous discrepancies found.

Under Rule 328 of the Rules and Instructions for Inspection and Testing of Locomotives Other Than Steam, 274 specification cards and 5 alteration reports were filed. These were carefully checked and analyzed and corrective measures taken with respect to the discrepancies found.

PROSECUTIONS

No prosecutions for violations of the locomotive inspection law were instituted during the year.

Three cases which were pending at the beginning of the year were disposed of. Judgment was assessed against the carrier in one case, one case was compromised upon payment by the carrier of the penalties sued for, and judgment was rendered by the court in favor of the defendant in the third case.

APPEALS

Three formal appeals were taken from the decisions of our inspectors during the year, two of which were dismissed. Two items were involved in one of the appeals, one of which was dismissed while the carrier was sustained in the other.

RULES AND INSTRUCTIONS FOR INSPECTION AND TESTING OF LOCOMOTIVES OTHER THAN STEAM

In conformity with the established practices in the formulation of rules and instructions, conferences were held with interested parties and a code of rules for inspection and testing of locomotives other than steam was formulated and agreed upon, which was approved by order of the commission dated December 14, 1925, and made effective July 1, 1926.

RECOMMENDATIONS FOR BETTERMENT OF THE SERVICE

In my former reports recommendations were made, in accordance with section 7 of the act, as amended, for the application of automatic fire doors, power reverse gears, power grate shakers, automatic bell ringers, horizontal hand holds, stirrups on cabs, and water columns with water glass and gauge cocks attached with an additional water glass located on the left side or boiler back head, and reasons therefor given.

Many of the carriers are recognizing the value in the promotion of safety, efficiency, and economy of these appliances and are complying with the recommendations in many cases, while others are not, therefore the recommendations are respectfully renewed and should be made a requirement of the rules.

LOW-WATER ALARMS

Audible low-water alarms are now being experimented with very successfully and are being applied by many of the carriers. The general application of a dependable low-water alarm would be of inestimable value in reducing the number of serious and fatal accidents caused by explosions. It is felt that the carriers can make no greater contribution to the safety of locomotive operation than by continuing to assist in the development of these devices to the extent that they may become wholly dependable in warning the enginemen when water becomes dangerously low in the boiler.

A. G. PACK,
Chief Inspector.

**ACCIDENTS AND CASUALTIES RESULTING FROM THE FAILURE OF
LOCOMOTIVES AND TENDERS AND THEIR APPURTENANCES
DURING THE FISCAL YEAR ENDED JUNE 30, 1926, BY ROADS**

[A star (*) indicates accidents taken from records of the Bureau of Statistics of the Interstate Commerce Commission. A double star (**) indicates accidents not properly reported, as required by rules 55 and 162. A complete investigation, therefore, could not be made, inasmuch as the bureau was not apprised of the accidents in sufficient time after they occurred to permit them to be properly investigated.]

ATCHISON, TOPEKA & SANTA FE RAILWAY SYSTEM:

July 22, 1925, locomotive 2059, Topeka, Kans. Water glass broke; cut by flying glass. One injured.

*August 5, 1925, locomotive 3529, Venta, Calif. Injector steam pipe blew out at fountain head account of defective weld. One injured.

August 12, 1925, locomotive 3165, Olivet, Kans. Superheater flue broke at safe end weld; overheated in welding. One injured.

August 22, 1925, locomotive 1484, Emporia, Kans. Guide bracket stud blew out of boiler; stud extended only half way through sheet, and threads were stripped. One injured.

**November 1, 1925, locomotive 374, Feterita, Kans. Engine step loose, causing engineer to fall to ground. One injured.

November 20, 1925, locomotive 1367, near Ibis, Calif. Main rod broke, due to old fracture. Three injured.

*February 17, 1926, locomotive 1465, Marguerite, Calif. Locomotive axle broke, causing derailment of entire passenger train with exception of engine truck. Four injured.

April 9, 1926, locomotive 1474, Artesia, N. Mex. Squirt hose blew off nipple account of not being securely clamped. One injured.

*April 30, 1926, locomotive 3504, Earlton, Kans. Branch pipe leaking. One injured.

May 4, 1926, locomotive 1072, Friona, Tex. Edge of cab apron worn sharp. One injured.

Ten accidents; 15 injured.

ATLANTA, BIRMINGHAM & ATLANTA RAILWAY:

May 24, 1926, locomotive 213, Manchester, Ga. Main rod broke in strap at front end at an old crack which covered approximately 25 per cent of cross-sectional area; rod had been built up with bronze metal to its original width by the use of an acetylene torch. One injured.

June 3, 1926, locomotive 41, near Fitzgerald, Ga. Crown sheet failure caused by overheating due to low water. One injured.

Two accidents; two injured.

ATLANTIC COAST LINE RAILROAD:

July 23, 1925, locomotive 1217, Florence, S. C. Scalded while using fire hose which had been cut by sharp edge of hanger. One injured.

**August 8, 1925, locomotive 1206, Richmond, Va. Boiler check stuck open. One injured.

**August 28, 1925, locomotive 365, near Willacoochee, Ga. Main axle broke just inside of hub due to old fracture. One injured.

**September 20, 1925, locomotive 1602, Lake City, S. C. Insufficient clearance between handle of injector and steam-heat pipe; nuts worked loose on studs securing quadrant bracket of injector-operating lever, allowing bracket to work upward and forward. One injured.

October 27, 1925, locomotive 991, Johns Island, S. C. Squirt hose burst at nipple connection. One injured.

**January 3, 1926, locomotive 273, near Tarpon Springs, Fla. Flue broke at defective safe end weld. One injured.

January 16, 1926, locomotive 1207, South Richmond, Va. Locomotive became uncoupled from train account of low coupler on front end; coupler only 29¼ inches above height of rail. One injured.

**January 20, 1926, locomotive 253, between Cofield and Ahoskie, N. C. Throttle lever fouled on handle on top gauge cock, breaking gauge cock off. One injured.

**February 19, 1926, locomotive 526, Thomasville, Ga. Insufficient clearance between reverse lever and sander pipe. One injured.

March 15, 1926, locomotive 901, between Carters and Lake Alfred, Fla. Squirt-hose pipe broke off. One injured.

April 14, 1926, locomotive 99, Fayetteville, N. C. Lubricator sight-feed glass blew out. One injured.

Eleven accidents; 11 injured.

BALTIMORE & OHIO RAILROAD SYSTEM:

**July 4, 1925, locomotive 1008, Willard, Ohio. Shaker bar broke. One injured.

July 6, 1925, locomotive 5226, Zelenople, Pa. Dead engine fixture pipe broke off at main reservoir pipe. One injured.

**July 28, 1925, locomotive 4284, Ravenna, Ohio. Cotter key used for lock pin in ash-pan operating lever came out; pin with locking feature was supposed to be used for this purpose. One injured.

**August 6, 1925, locomotive 1011, Willard, Ohio. Squirt-hose valve came open account of packing nut working off. One injured.

August 29, 1925, locomotive 2835, near Meyersdale, Pa. Crown-sheet failure caused by overheating due to low water; right injector inoperative account of steam nozzle worn, hot-water valve disconnected, combining tube defective, parts of both gaskets missing and tube loose; left injector found with overflow valve three-fourths of a turn open and would not lift all the water until overflow valve was closed; injectors reported "fair" or "bad" 10 times previous to accident. Two injured.

September 7, 1925, locomotive 4481, Georgetown Junction, Md. Scalded due to leaky squirt-hose valve; valve and valve seat cut. One injured.

September 14, 1925, locomotive 7159, Connellsville, Pa. Right No. 4 tender brake-beam hanger broke, breaking left hanger and permitting brake beam to come down and brake head to drag under wheels, causing derailment of No. 4 pair of tender wheels; brake hangers were worn and broken sections showed old defects. Two injured.

September 15, 1925, locomotive 2879, Garrett, Ind. Uncoupling lever chain at rear of tender became disconnected from knuckle lock account of an open link in lifting chain. One injured.

September 17, 1925, locomotive 1148, Cumberland, Md. Blower globe-valve bonnet nut blew off due to being too large for proper fit on valve body; nut was intended for use on a larger valve and was ½-inch too large. One injured.

September 19, 1925, locomotive 2734, Bloomingburg, Ohio. Right injector inoperative; annunciator valve missing, and operating lever rods out of alignment, fouling on loose cab, and no brackets to support rods. Two injured.

October 11, 1925, locomotive 1012, Willard, Ohio. Driving spring hanger broke, allowing front of engine to drop and footboard to catch on crossing plank. One injured.

October 22, 1925, locomotive (S. I. R. T.) 20, St. George, N. Y. Vacuum brake pipe failed at threaded connection where pipe passes over and rests on engine frame, rendering brakes inoperative and allowing locomotive and train to collide with bumping block; threads of brake-pipe connection badly corroded and wasted away. Seven injured.

**October 22, 1925, locomotive 1960, Baltimore, Md. Throttle lever flew back and struck engineer; throttle lever latch and quadrant worn and not holding properly. One injured.

November 4, 1925, locomotive 4229, De Forest Junction, Ohio. Spring hanger pin used in place of standard coupler pivot pin broke in four pieces account of being undersize. One injured.

*November 4, 1925, locomotive 4872, Grafton, W. Va. Pin came out of ash-pan lever. One injured.

**November 7, 1925, locomotive 2871, Greenfield, Ohio. Injector branch pipe worked loose, causing injector to leak badly. One injured.

*November 8, 1925, locomotive 2281, Layton, Pa. Front drawhead on engine pulled out due to being held by only two bolts on one side; nut was off top bolt on right side and bottom bolt was missing. One injured.

**November 14, 1925, locomotive 4293, New Castle Junction, Pa. Lubricator drain valve broke off. One injured.

November 16, 1925, locomotive 5015, near Vienna, W. Va. Main driving wheel axle broke at inside hub due to old fracture covering 60 per cent of area. One injured.

November 26, 1925, locomotive 5071, Suter, Pa. Cylinder head blew out, due to old crack extending approximately 45 per cent of circumference of breakage groove. One injured.

**December 1, 1925, locomotive 7166, Grafton, W. Va. Left front vertical section of handrail around headlight pulled off; threads in tee connection at top end stripped and bottom socket broke through autogenous weld connecting it to running board. One injured.

December 7, 1925, locomotive 1455, Childs, Md. Crown sheet failure caused by overheating due to low water; no contributory causes found. Two killed.

December 8, 1925, locomotive 1409, Longdale, W. Va. Right back crank pin broke; crank pin out of quarter. Two injured.

December 16, 1925, locomotive 1168, Canton, Ohio. Shaker bar came off post; pin connecting shaker post arm to grate rod fouled on ash pan, causing shaker bar to jerk; shaker bar was improper fit on post. One injured.

December 18, 1925, locomotive 1544, Chillicothe, Ohio. Part of body gasket in upper section of reflex water glass blew out. One injured.

December 19, 1925, locomotive 4843, Rockwood, Pa. Insufficient clearance between cab handhold and tender deck when rounding a sharp curve. One injured.

**January 8, 1926, locomotive 4871, Bethesda, Ohio. Drop portion of ash pan lever pin was missing, allowing pin to come out and lever flew back and struck employee's hand. One injured.

January 28, 1926, locomotive 4306, Tiffin, Ohio. Ash-pan lever pin came out. One injured.

January 29, 1926, locomotive 1667, Akron Junction, Ohio. Boiler check stuck open and steam escaping from overflow pipe obscured vision of employee, causing him to step off running board where it had an off-set. One injured.

**February 6, 1926, locomotive 4877, Smithfield, Pa. Broken stay bolt blew out of firebox sheet due to threads being corroded away caused by long leakage and frequent hammering on end of bolt. This bolt was what is known as a "reduced body bolt" and was found broken in reduced body section at root of fillet beyond the end of the telltale hole. Accident occurred while boiler-maker was making repairs in firebox and resulted in his being so badly scalded that he died five days later. One injured.

**February 21, 1926, locomotive 2894, Caseyville, Ill. Bushing on piston pin came out of slide allowing wings of fire door to close on fireman's hand; "Repair fire door" was reported on February 21 (previous to accident) and report indicated that repairs were made. One injured.

February 28, 1926, locomotive 1633, Linden, N. J. Reverse-lever quadrant bracket stud blew out; valves and seats were badly cut and valves and cylinders not properly lubricated; stud not properly applied and threads on stud and in boiler shell in poor condition; quadrant did not fit stud properly and quadrant teeth in bad condition; reversing gear reported on February 1, 2, 4, 6, 7, 8, 14, 17, 18, 19, 21, 22, 24, 25, and 26. One injured.

*March 2, 1926, locomotive 932, Chicago, Ill. Tank hose became disconnected. One injured.

*March 18, 1926, locomotive 362, Baltimore, Md. Spring hanger broke. One injured.

*March 31, 1926, locomotive 4432, Cumberland, Md. Insufficient clearance between reverse wheel and independent brake pipe. One injured.

**April 7, 1926, locomotive 2720, Addyston, Ohio. Front section of grates became disconnected account of bolt in reach rod losing out. One injured.

**April 12, 1926, locomotive 4310, Toboso, Ohio. Variations in height of couplers of locomotives caused knuckles to slip by; coupler on locomotive 4310 was 35½ inches above the rail. One injured.

April 20, 1926, locomotive 1443, near Hanover, Md. Eccentric rod broke due to crank-arm key losing out; key not properly secured. One injured.

April 24, 1926, locomotive 5167, between Hunt and Mount Vernon, Ohio. Tender deck 2½ inches higher than engine deck. One injured.

**April 28, 1926, locomotive 167, Green Springs, W. Va. Blower pipe leaking. One injured.

**May 28, 1926, locomotive 6114, West Cumbo, W. Va. Drifting valve was inoperative account of being loose due to a nut coming off valve stem. One injured.

June 8, 1926, locomotive 1818, Martinsburg, W. Va. Squirt hose valve nipple broke off. One injured.

June 13, 1926, locomotive 4506, Eidenau, Pa. Flue failed just inside back flue sheet where expanded by rib of prosser; flue wasted away from original thickness of approximately ½ inch to 0 in thickness at point of failure and split from head through sheet in two places. One injured.

June 27, 1926, locomotive 1870, Wheeling, W. Va. Defective squirt hose valve. One injured.

**June 30, 1926, locomotive 4134, Wilsonburg, W. Va. Extension handle of injector overflow valve disconnected at joint under cab floor account of cotter key losing out. One injured.

Forty-five accidents; 2 killed, 54 injured.

BANGOR & AROOSTOOK RAILROAD:

August 4, 1925, locomotive 76, Arey, Me. Water glass burst. One injured. One accident; one injured.

BELT RAILWAY OF CHICAGO:

**July 1, 1925, locomotive 106, Chicago, Ill. Squirt hose broke at pipe connection; hose defective. One injured.

**July 21, 1925, locomotive 105, Chicago, Ill. Footboard on rear of tender split through near outer edge. One injured. Two accidents; two injured.

BOSTON & MAINE RAILROAD:

July 8, 1925, locomotive 2406, East Somerville, Mass. Locomotive parted from train, causing emergency application of brakes; tender truck frame bent and rear coupler too low account of knuckle of improper size. One injured.

July 26, 1925, locomotive 2117, Union, N. H. Heavy wooden flag box attached to back of cab fell and struck fireman. One injured.

*August 21, 1925, locomotive 413, East Somerville, Mass. Burned by steam leaking from fire-extinguisher throttle valve. One injured.

September 28, 1925, locomotive 3708, East Somerville, Mass. Handhold on side of cab broke, causing hostler to fall to ground; metal overheated when handhold was made and one end broken off and other end partly broken prior to accident. One injured.

February 16, 1926, locomotive 441, Mystic Junction, Mass. Key worked out of eccentric crank and fouled on eccentric rod, bending rod and reach rod and releasing reverse lever; key reported "working out" on February 8, 10, 11, 13, and 14. One injured.

Five accidents; five injured.

BUFFALO CREEK RAILROAD:

May 18, 1926, locomotive 18, Buffalo, N. Y. Ash pan operating lever without provision to prevent it from being pushed down far enough to catch on ground or ties. One injured.

One accident; one injured.

BUFFALO, ROCHESTER & PITTSBURGH RAILWAY:

March 4, 1926, locomotive 174, Rikers, Pa. Smokestack extension in front end became displaced due to one lug being broken off and nuts off of two bolts, leaving only one bolt holding, which allowed extension to drop out of alignment and cause back draft. One injured.

April 17, 1926, locomotive 252, Falls Creek, Pa. Injector steam-pipe collar pulled out of spanner nut account of collar being too small for opening in spanner nut; a tight joint had been made between injector and steam pipe by means of a copper gasket wrapped with asbestos. One injured.

Two accidents; two injured.

CANADIAN NATIONAL RAILWAYS:

**August 14, 1925, locomotive (G. T.) 3435, Griffith, Ind. Main rod strap broke, causing cylinder head to be knocked out. One injured.

*June 5, 1926, locomotive (G. T.) 7190, Grand Rapids, Mich. Brake hanger broke due to old flaw. One injured.

Two accidents; two injured.

CAROLINA & NORTHWESTERN RAILROAD:

September 18, 1925, locomotive (Sou) 3350, near Oyama, N. C. Side rod broke due to old crack in rod. Two injured. One accident; two injured.

CENTRAL OF GEORGIA RAILWAY:

*July 17, 1925, locomotive 1154, Savannah, Ga. Spring hanger broke, allowing locomotive to drop on that side and footboard to catch on pavement. One injured.

August 21, 1925, locomotive 1679, Adams, Ga. Pilot step bent back under pilot beam, causing employee to fall when he attempted to mount pilot step. One killed.

November 8, 1925, locomotive 796, Cresswell, Ala. Crown sheet failure caused by overheating due to low water. One injured.

Three accidents; one killed, two injured.

CENTRAL NEW ENGLAND RAILWAY:

August 11, 1925, locomotive (N. Y., N. H. & H.) 385, Poughkeepsie, N. Y. Shaker bar broke at clevis due to old defect, also metal was overheated at time clevis was welded to bar. One injured.

January 27, 1926, locomotive (N. Y., N. H. & H.) 3232, West Patterson, N. Y. Coupler on rear of tender pulled out at yoke connection due to rivets shearing, allowing locomotive to separate from train and cause sudden stop; holes in yoke and lugs on shank of coupler indicated considerable lost motion prior to failure. Three injured.

Two accidents; four injured.

CENTRAL RAILROAD OF NEW JERSEY:

December 15, 1925, locomotive 59, Allentown, Pa. Front uncoupling lever disconnected from coupler lock pin due to connecting link opening up. One injured.

**December 29, 1925, locomotive (Reading) 108, Westfield, N. J. Grease-cup cap flew from passing locomotive and struck a prospective passenger who was waiting on station platform. One injured.

*April 27, 1926, locomotive 783, Elizabeth, N. J. Bolt worked out of pilot brace, allowing it to drop until it came in contact with engine truck. One injured.

Three accidents; three injured.

CHARLESTON & WESTERN CAROLINA RAILWAY:

**November 7, 1925, locomotive 401, Clarks Hill, S. C. Injured while attempting to shake grates; two of the fulcrum posts had been disconnected, due to change in design of grates, but had not been removed from engine deck. One injured.

One accident; one injured.

CHESAPEAKE & OHIO RAILWAY:

July 5, 1925, locomotive 863, near Gibson, Ky. Crown-sheet failure caused by overheating due to low water; no contributory causes found. Two injured.

**July 7, 1925, locomotive 976, Lyndon, Ky. Drawbar pin broke, due to old flaw, causing engine and tender to separate. One injured.

July 12, 1925, locomotive 885, Stevens, Ky. Center portion of cylinder head blew out, knocking brakeman off footboard; reduced section inside of cylinder seat of insufficient strength to withstand pressure. One injured.

**September 5, 1925, locomotive 876, Berkley Junction, W. Va. Squirt hose parted at splice. One injured.

**December 24, 1925, locomotive 1071, South Portsmouth, Ky. Engine separated from leading locomotive account of end sill pulling out. One injured.

January 9, 1926, locomotive 1360, Hurricane, W. Va. Crown-sheet failure caused by overheating, due to low water. Three killed, three injured.

**January 31, 1926, locomotive 1041, near Shelby, Ky. Carrier iron on rear of locomotive came down account of yoke bolts breaking, allowing locomotive to separate from train and cause sudden stop. One injured.

March 16, 1926, locomotive 287, near Foster, Ky. Crown-sheet failure caused by overheating, due to low water; no contributory causes found. Two injured.

*June 1, 1926, locomotive 1047, Jenkins, Ky. Marker staff on front of engine pulled loose account of threads on bolt and nut securing bracket to buffer beam being badly deteriorated. One injured.

*June 3, 1926, locomotive 1075, Maysville, Ky. Flagstaff pulled out of socket at front end account of bolt securing staff working out. One injured.

Ten accidents; 3 killed, 14 injured.

CHICAGO & NORTHWESTERN RAILWAY:

July 6, 1925, locomotive 659, Clyman Junction, Wis. Flange of dry pipe tee in smoke box broke off causing back draft. One injured.

July 20, 1925, locomotive 326, Wausau Junction, Wis. Grate shaker bar slipped off lever due to improper fit. One injured.

August 15, 1925, locomotive 1558, Chicago, Ill. Left front cylinder-head casing became detached and was thrown from locomotive while traveling at estimated speed of 40 miles per hour; main rod too long causing piston to strike cylinder head, cracking same; cylinder-head casing stud improperly applied. Three injured.

October 24, 1925, locomotive 2577, near Upton, Ill. Cab apron worn smooth. One injured.

October 30, 1925, locomotive 1616, Reedsburg, Wis. Steam-heat pipe leaking badly at governor connection due to threads on governor and connection nut badly worn; nut so loose that it could be run up full length of governor by hand. One injured.

November 23, 1925, locomotive 311, South Oshkosh, Wis. Reducer bushing on dynamo steam pipe broke at tee connection on the dome causing employee to fall from top of boiler to engine-house floor; old fracture of more than one-half circumference of reducer bushing. One injured.

December 7, 1925, locomotive 413, near Carrollville, Wis. Insufficient clearance between reverse lever and air pipes; stop at front of quadrant missing. One injured.

December 20, 1925, locomotive 1589, Minnesota City, Minn. Blow-off cock stuck open account of piece of staybolt having dropped into slot ahead of blow-off cock lever; handle of blow-off cock emergency valve located too near end of blow-off cock discharge pipe. One injured.

January 13, 1926, locomotive 165, near Shawano, Wis. Dry pipe leaking at standpipe joint and at front end prevented valves from being properly lubricated and caused reverse lever to be very difficult to operate. One injured.

**January 14, 1926, locomotive 1848, Crowl, Nebr. Main rod broke through top of eye at front end, breaking rod in three pieces; old fracture extended through seven-eighths of top section of rod; worn places in eye had been built up by use of acetylene torch. One injured.

February 6, 1926, locomotive 1021, Appleton Junction, Wis. Main driving axle broke due to old fracture covering approximately 40 per cent of cross-sectional area. One injured.

March 10, 1926, locomotive 2710, Andrews, Nebr. Flue broke off at safe-end weld; overheated in welding. One injured.

March 27, 1926, locomotive 2603, Chicago, Ill. Fire door stuck in closed position and opened suddenly; excessive accumulation of hard dry oil in door grooves operating in door slides. One injured.

May 24, 1926, locomotive 2497, near Beverly, Iowa. Grate-shaker lever broke through latch-bolt hole; latch-bolt hole had been plugged at which time the metal of lever was burned. One injured.

June 8, 1926, locomotive 588, Jewell, Iowa. Ash-pan doors too close fit in slides or guides caused operating lever to slip off while being used. One injured.

June 16, 1926, locomotive 2448, Ashippun, Wis. Shovel caught on projections on cab apron; cab apron improperly roughened. One injured.

Sixteen accidents; 18 injured.

CHICAGO, BURLINGTON & QUINCY RAILROAD:

**July 17, 1925, locomotive 2933, near Plano, Ill. Left No. 1 driving spring broke and pieces of the broken leaves struck section foreman; 3 of the 11 broken leaves showed old fractures and one-half of first short leaf was missing and showed to be old break. One injured.

August 31, 1925, locomotive 2813, St. Paul, Minn. Water glass and water-glass shield broke. One injured.

November 25, 1925, locomotive 5209, Kirkwood, Ill. Steam bonnet blew off of drain valve of Street Stoker engine due to not being properly tightened. One injured.

December 7, 1925, locomotive 5336, Brookfield, Mo. Water glass broke; cut by flying glass; water-glass shield missing or broke at time of accident. One injured.

December 9, 1925, locomotive 2833, Lincoln, Nebr. Rivet blew out of firebox-door sheet seam; rivet showed old fracture. One injured.

December 29, 1925, locomotive 1719, St. Joseph, Mo. Flue broke at safe-end weld due to being overheated and wasted away at time of welding. One injured.

January 6, 1926, locomotive 2211, near Bayard, Nebr. Crown sheet failure caused by overheating due to low water; no contributory causes found. One injured.

January 12, 1926, locomotive 1524, Chicago, Ill. Right main air reservoir exploded due to being corroded away to a thickness of only $\frac{1}{8}$ to $\frac{3}{8}$ inch where rupture occurred. One injured.

March 27, 1926, locomotive 6104, Shattuc, Ill. Radius-rod pin lost out account of nuts working off. One injured.

Nine accidents; nine injured.

CHICAGO GREAT WESTERN RAILROAD:

*January 11, 1926, locomotive 263, Oelwein, Iowa. Counterbalance spring broke. One injured.

One accident; one injured.

CHICAGO, INDIANAPOLIS & LOUISVILLE RAILWAY:

August 14, 1925, locomotive 80, Otis, Ind. Washout-plug cap blew out due to loose and improper fit. One injured.

March 2, 1926, locomotive 281, Peerless, Ind. Side-rod grease-cup plug blew out when cup was packed with contents of fusee account of pin running hot. One injured.

**March 9, 1926, locomotive 521, Louisville, Ky. Boiler-check cut-out valve bonnet blew out when attempt was made to tighten under pressure; body of check had expanded from constant use and light construction and threads badly stripped so that bonnet could be inserted into check $\frac{1}{2}$ inch without turning. One injured.

Three accidents; three injured.

CHICAGO, MILWAUKEE & ST. PAUL RAILWAY:

*July 6, 1925, locomotive 2303, Healy, Ill. Blow-off cock stuck open account of foreign substance lodged in valve. One injured.

July 11, 1925, locomotive 2604, Plankinton, S. Dak. Squirt hose burst; hose defective. One injured.

August 8, 1925, locomotive 8372, near Monroe Center, Ill. Crown sheet failure due to low water; no contributory causes found. Three injured.

August 13, 1925, locomotive 7202, Bensenville, Ill. Left injector overflow valve cam shaft bearing badly worn causing bad leak; injectors were each reported defective six times in the nine days preceding the accident. One injured.

September 15, 1925, locomotive 5539, Elk River Junction, Iowa. Insufficient clearance between reverse lever in full forward position and air-pipe manifold. One injured.

October 1, 1925, locomotive 7120, Chicago, Ill. Squirt hose burst; hose badly worn by chafing on apron. One injured.

October 12, 1925, locomotive 4215, Kimbrae, Minn. Main rod broke due to old fracture. One injured.

October 17, 1925, locomotive 8373, Savanna, Ill. Lubricator sight glass blew out; packing ring nut holding glass in lubricator was missing. One injured.

October 25, 1925, locomotive 1289, Minneapolis, Minn. Water glass burst, breaking glass panel of water glass shield. One injured.

**October 31, 1925, locomotive 1240, Milwaukee, Wis. Rear headlight glass broke and fell out, striking employee. One injured.

December 6, 1925, locomotive 8206, Chicago, Ill. Left engine truck climbed guard rail caused by right front cradle hanger pin being too long, preventing truck from curving properly. Two injured.

*December 6, 1925, locomotive 6121, Postville, Iowa. Cap to inside injector overflow blew off. One injured.

January 13, 1926, locomotive 7212, Milwaukee, Wis. Cushion cover on cab seat box slipped out of place causing fireman to fall to deck. One injured.

**January 22, 1926, locomotive 3127, Oshkosh, Wis. Boiler check stuck up and union in drain pipe was leaking account of not being properly tightened. One injured.

January 28, 1926, locomotive 8278, near Doney, Ill. Crown sheet failure caused by overheating due to low water; gauge cock dripper pipe stopped up. Three injured.

**February 19, 1926, locomotive 8093, Bensenville, Ill. Coal gate broken. One injured.

March 10, 1926, locomotive 2612, near Wolsey, S. Dak. Ash pan sprinkler valve bonnet unscrewed while engineer was attempting to operate valve; bonnet very poor fit in valve body. One injured.

**March 26, 1926, locomotive 2621, Grant Center, Iowa. Squirt hose burst; valve at front end of squirt hose pipe was leaking which allowed pipe and hose to fill with condensation and freeze up. One injured.

*May 13, 1926, locomotive 8380, Milwaukee, Wis. Plate came off barrel of stoker. One injured.

Nineteen accidents; 24 injured.

CHICAGO, ROCK ISLAND & PACIFIC RAILWAY:

*July 8, 1925, locomotive 2512, McFarland, Kans. Fireman stepped into hole in platform around siphon pipe and coal board; plank not closely fitted around siphon bends. One injured.

July 16, 1925, locomotive 1707, El Dorado, Ark. Crown sheet failure caused by overheating due to low water; no contributory causes found. Two injured.

August 5, 1925, locomotive 3021, Mercer, Mo. Squirt hose valve leaking. One injured.

August 17, 1925, locomotive 2143, El Reno, Okla. Reverse lever counterbalance spring broken. One injured.

August 26, 1925, locomotive 180, Chickasha, Okla. Connection to blow-off cock pipe blew off; blow-off cock pipe not properly spaced so that elbow could be properly screwed on. One injured.

October 4, 1925, locomotive 900, near Herington, Kans. Tender deck 2 inches higher than engine deck. One injured.

November 10, 1925, locomotive 418, Kansas City, Kans. Injector spanner nut at connection to boiler cage broke while attempting to tighten with hammer and set; nut was of poor material and broke in two places and was cracked at another. One injured.

*January 10, 1926, locomotive 1603, Blue Island, Ill. Blow-off cock stuck open and could not be closed from cab account of rod being bent. One injured.

**February 16, 1926, locomotive 176, Oklahoma City, Okla. Front driving spring hanger broke permitting locomotive to drop and catch footboard on track bending it under the locomotive; hanger had been reduced in width by oxy-acetylene torch and material badly burned. One injured.

March 15, 1926, locomotive 969, McFarland, Kans. Handrail broke at coupling due to improper application. One injured.

April 6, 1926, locomotive 1878, Memphis, Tenn. Squirt hose blew off nipple due to being insecurely clamped. One injured.

*April 6, 1926, locomotive 1043, Chicago, Ill. Arch bar of engine truck broke at column bolt hole. Two injured.

May 9, 1926, locomotive 1563, Tioga, La. Blow-off cock leaking and nut on end of valve stem very loose. One injured.

May 14, 1926, locomotive 916, near Fairport, Iowa. Cab window fell out of guides due to improper height of frame. One injured.

**May 30, 1926, locomotive 1769, Houston, Ark. Air pipe broke off at connection to main reservoir. One injured.

**June 18, 1926, locomotive 2633, Brooklyn, Iowa. Motion plate bolts gave away, loosening wrist pin which allowed valve gear to drop while engine was being disconnected. One injured.

Sixteen accidents; 18 injured.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA RAILWAY:

August 29, 1925, locomotive 52, Minneapolis, Minn. Squirt hose burst where cut by cab apron. One injured.

October 7, 1925, locomotive 125, Minneapolis, Minn. Insufficient clearance between bottom end of cab curtain board on front end of feed water tank and cab apron. One injured.

October 27, 1925, locomotive 514, Merrillan, Wis. Metal windbreak on cab roof broke when used as handhold; windbreak not properly bolted and old flaw in material covering approximately 50 per cent of cross-sectional area. One injured.

November 8, 1925, locomotive 491, Hudson, Wis. Coupler-pin lifter clevis broke. One injured.

January 6, 1926, locomotive 416, Minneapolis, Minn. Cab arm rest gave way account of being loose on hinge, causing employee to fall. One injured.

**May 21, 1926, locomotive 112, between St. James and St. Paul, Minn. Grate rod became disconnected. One injured.

**May 22, 1926, locomotive 161, between Merrillan and Marshfield, Wis. Spring hanger broke. One injured.
Seven accidents; seven injured.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS RAILWAY:

December 3, 1925, locomotive 6685, Mount Carmel, Ill. Side rod broke due to old fracture. One injured.

December 3, 1925, locomotive 164, Paris, Ill. Driving wheels slipped account of leaky throttle; "M. throttle valve leaking bad" was reported on November 27, and repairs not made. One injured.

March 20, 1926, locomotive 6181, near Sidney, Ohio. Superheater flue broke off at safe end weld; overheated and reduced in thickness in welding. Three injured.

April 13, 1926, locomotive 166, near Indianapolis, Ind. Side rod broke due to old fracture covering approximately 72.4 per cent of cross-sectional area. Two injured.

June 7, 1926, locomotive 6492, Columbus, Ohio. Bonnet of oil cut-out valve blew out of lubricator account of threads on bonnet and in lubricator being worn, causing a loose fit. One injured.

Five accidents; eight injured.

COLUMBUS & GREENVILLE RAILWAY:

July 21, 1925, locomotive 216, Columbia, Miss. Lubricator sight glass burst and glass and packing nut blew out striking employee; packing nut a very loose fit. One injured.

One accident; one injured.

DELAWARE & HUDSON COMPANY:

November 11, 1925, locomotive 31, Whitehall, N. Y. Wooden tread on locomotive step broke through old fracture causing employee to fall; wooden tread extended 1½ inches over edge of step. One injured.

December 13, 1925, locomotive 885, near Unadilla, N. Y. Cab window blew out of sash. One injured.

March 5, 1926, locomotive 1066, Carbondale, Pa. Flue failed at defective safe end weld. One injured.

April 16, 1926, locomotive 1059 Pittston, Pa. Flue failed at defective safe end weld. One injured.

June 5, 1926, locomotive 853, Schoharie Junction, N. Y. Main pin broke due to old fracture covering approximately 75% of cross-sectional area. Two injured.

June 19, 1926, locomotive 35, Green Ridge, Pa. Reverse lever stop loose on quadrant, allowing lever to come in contact with bottom gauge cock handle. One injured.

Six accidents; seven injured.

DELAWARE, LACKAWANNA & WESTERN RAILROAD:

September 26, 1925, locomotive 1134, Denville, N. J. Cab apron worn smooth causing fireman to fall. One injured.

October 10, 1925, locomotive 577, Kingston, Pa. Handrail on front of smoke box gave away causing trainman to fall to ground; center handrail column loose which allowed handrail to slip out of end columns. One injured.

November 4, 1925, locomotive 952, Chester, N. J. Shaker bar slipped off post due to improper fit. One injured.

June 22, 1926, locomotive 1239, Willow Point, N. Y. Crown sheet failure caused by overheating due to low water; no contributing causes found. Three injured.

Four accidents; six injured.

DENVER & RIO GRANDE WESTERN RAILROAD:

July 17, 1925, locomotive 800, Salida, Colo. Insufficient clearance between edge of cab apron and leg of tank. One injured.

**September 16, 1925, locomotive 1177, near Carlisle, Colo. Reverse lever jerked from engineer's grasp and flew into forward corner striking his leg:

reverse gear reported on September 9, 10, 14, 14, 15, 17, and 17, and each report indicated repairs made; reversing gear found defective at time of this investigation (14 days later). One injured.

November 7, 1925, locomotive 1529, Burnham, Colo. Wooden plug blew out of steam pipe to drifting valve; plug applied to close hole where street ell fitting had broken off. One injured.

*February 18, 1926, locomotive 1520, Woodside, Utah. Locomotive uncoupled from train causing sudden stop account of rear draw bar on tank being 1½ inches low. Two injured.

March 1, 1926, locomotive 3411, near Brown Canon, Colo. Excessive loss of oil out of reversing gear oil cylinder due to leakage through piston-rod gland prevented employee from having proper control of reversing gear; storm boards applied to back of cab interfered with proper clearance around reverse lever. One injured.

June 29, 1926, locomotive 805, near Eden, Colo. Globe valve between grease lubricator and drifting steam pipe leaked excessively when in closed position, allowing pressure to accumulate in lubricator and force cap off unexpectedly as it was being removed. One injured.

Six accidents; seven injured.

DETROIT, TOLEDO & IRONTON RAILROAD:

May 21, 1926, locomotive 116, Uniopolis, Ohio. Crown sheet failure caused by overheating due to low water; water glass cock constructed with insufficient opening at nipple in bottom of glass, and this opening was further reduced to less than one-eighth inch by accumulation of hard scale. Two injured.

One accident; two injured.

ERIE RAILROAD:

July 6, 1925, locomotive 1624, near Kenton, Ohio. Superheater flue burst due to being worn to less than one-thirty-second inch in thickness. Two injured.

July 7, 1925, locomotive 4101, Warren, Ohio. Plug blew out of port hole in left valve chamber due to being loose and poor threads in hole. One injured.

September 18, 1925, locomotive 2913, Polk, Ohio. Main driving axle broke near inside face of wheel due to old flaws covering about 50 per cent of cross-sectional area; when axle broke engine derailed and broken section of side rod tore hole in throat sheet and back flue sheet which caused flame and steam to envelop cab. Two injured.

September 23, 1925, locomotive 3119, Jersey City, N. J. Flue failed at water side of back flue sheet; flue thin and wasted away. Two injured.

September 29, 1925, locomotive 2019, North Judson, Ind. Manhole cover hinge broke account of being too light and improperly bolted to cover. One injured.

November 14, 1925, locomotive 1574, Salamanca, N. Y. Crown sheet failure caused by overheating due to low water; no contributory causes found. One killed, 1 injured.

December 23, 1925, locomotive 1877, Wadsworth, Ohio. Driver brake push bar yoke broke through eye at connection to fulcrum arm caused by excessive brake cylinder pressure due to defective air reducing valve. One injured.

January 6, 1926, locomotive 4109, Pymatuning, Pa. Superheater tube collapsed due to being overheated and reduced to ½-inch in thickness at the time when safe end was welded on. One injured.

*January 30, 1926, locomotive 2738, Corning, N. Y. Locomotive broke from head car account of low drawhead on rear of tender; carrier iron of tender drawhead bent downward approximately 2 inches. One injured.

**May 23, 1926, locomotive 895, Honesdale, Pa. Stay bolt blew out of wrapper sheet due to being broken in reduced body section and threads stripped in wrapper sheet and on bolt. One injured.

*June 20, 1926, locomotive 3049, Gowanda, N. Y. Trailer wheel mounted rail due to sleeve binding in spring case on left side of centering device, causing derailment of entire engine. One injured.

Eleven accidents; 1 killed, 14 injured.

FLORIDA EAST COAST RAILWAY:

September 21, 1925, locomotive 103, near Yamato, Fla. Piston rod broke at keyway due to old flaw. One injured.

*September 26, 1925, locomotive 100, Espanola, Fla. Squirt hose became disconnected. One injured.

November 30, 1925, locomotive 85, Miami, Fla. Crown sheet failure due to low water; bottom water glass cock partially closed with hard scale. One injured.

December 12, 1925, locomotive 141, Fort Lauderdale, Fla. Crown sheet failure; low water; no contributory causes found. One killed; one injured.

March 4, 1926, locomotive 408, St. Augustine, Fla. Squirt hose pulled off nipple; no clamp had been applied. One injured.

April 29, 1926, locomotive 105, Perrine, Fla. Water glass broke breaking water glass shield. One injured.

June 1, 1926, locomotive 407, White City, Fla. Squirt hose came off of nipple account of not being securely clamped. One injured.

Seven accidents; one killed, seven injured.

FORT SMITH & WESTERN RAILWAY:

**September 10, 1925, locomotive 32, Weleetka, Okla. Pipe to blow-off cock turned when cock was opened due to not being secured in place. One injured. One accident; one injured.

GEORGIA & FLORIDA RAILWAY:

*September 5, 1925, locomotive 402, Douglas, Ga. Sprinkler hose valve worked open. One injured. One accident; one injured.

GREAT NORTHERN RAILWAY:

July 3, 1925, locomotive 3140, Kulzer, Wash. Shaker bar slipped off post due to improper fit. One injured.

**July 28, 1925, locomotive 1185, Hillyard, Wash. Power grate shaker lock slipped off post account of excessive taper of post. One injured.

September 25, 1925, locomotive 704, Appleyard, Wash. Broken rivet blew out of firebox side sheet when calking tool was used allowing contents of boiler to be discharged into firebox. One injured.

October 23, 1925, locomotive 825, Great Falls, Mont. Back footboard tipped account of being improperly secured and loose at one end, causing switchman to fall. One injured.

November 14, 1925, locomotive 3129, Cushman, Mont. Stay bolt broke and blew scale out of the telltale hole. One injured.

November 27, 1925, locomotive 1470, near Park Dale, Minn. Main crank pin broke due to old flaw covering approximately seven-eighths of cross-sectional area. One injured.

November 27, 1925, locomotive 3030, St. Cloud, Minn. Grate shaker bar slipped off post; post had been broken and autogenously welded which did not permit a proper fit. One injured.

December 16, 1925, locomotive 3005, Benson, Minn. Grate shaker bar slipped off post due to improper fit account of defective condition of post; post reported on December 15 and proper repairs not made. One injured.

January 19, 1926, locomotive 1644, Wagner, Mont. Handle on blow-off cock extension rod came off due to being improperly secured. One injured.

**January 28, 1926, locomotive 2121, Vulcan, Wash. Main throttle stuck and released suddenly, striking engineer; throttle packing ring was badly worn and counterbalance valve on top of throttle not properly adjusted; throttle reported on January 26 and 28 and proper repairs not made. One injured.

February 2, 1926, locomotive 1559, Stephen, Minn. Leak in tank permitted ice to accumulate on tender sill step, causing employee to fall from step; tank reported leaking on January 21 and 26. One injured.

February 7, 1926, locomotive 3302, Great Falls, Mont. Cotter key missing from pony truck cradle hanger pin permitted pin to work out and foul cradle casting, derailing the locomotive. One injured.

Twelve accidents; 12 injured.

GULF COAST LINES:

*September 10, 1925, locomotive (B. S. L. & W.) 102, Vidor, Tex. Bottom hanger pin of front driving spring broke or lost out, causing cross-equalizer to fall out and pilot to drop on the rail. One injured.

*November 20, 1925, locomotive (B. S. L. & W.) 117, Victor, Tex. Squirt hose broke off at threads in elbow which extends into injector account of deterioration. One injured.

June 5, 1926, locomotive (I. & G. N.) 112, Mercedes, Tex. Crown sheet failure while in charge of engine watchman caused by overheating due to low water. One injured.

Three accidents; 3 injured.

GULF, MOBILE & NORTHERN RAILROAD:

September 18, 1925, locomotive 102, Little Rock, Miss. Superheater flue broke off at safe end weld; flue had been safe-ended by autogenous welding process and weld was defective. One injured. One accident; 1 injured.

HOCKING VALLEY RAILWAY:

* August 29, 1925, locomotive 209, near Marion, Ohio. Squirt hose parted at splice. One injured.

December 25, 1925, locomotive 217, Lemoyne, Ohio. Crown-sheet failure caused by overheating due to low water; water-glass lamp was loose and not in position to illuminate water glass and lamp wire was disconnected; initial rupture occurred in autogenously welded seam between crown sheet of combustion chamber and fire box proper. A total of 273 inches of autogenously welded seams in fire box failed. Three injured.

** February 12, 1926, locomotive 137, South Columbus, Ohio. Washout cap blew out; attempted to tighten under pressure. Two injured. Three accidents; six injured.

ILLINOIS CENTRAL RAILROAD:

August 17, 1925, locomotive 1039, Memphis, Tenn. Washout plug blew out due to not being properly tightened. One injured.

** October 1, 1925, locomotive 1630, Gwin, Miss. Ash-pan squirt-valve bonnet came off account of bonnet lock nut not being screwed tight against bonnet. One injured.

October 28, 1925, locomotive 1753, Chicago, Ill. Water-glass burst; cut by flying glass; top and bottom of water-glass shield unprotected. One injured.

November 9, 1925, locomotive 3021, East Thomas, Ala. Front end of guide step was loose account of broken studs and swung out, striking employee. One injured.

** January 9, 1926, locomotive 3010, Centralia, Ill. Injector overflow valve stuck closed. One injured.

** April 16, 1926, locomotive 1559, Kinmundy, Ill. Pin, securing lower end of grate-shaker post to connecting strap under grates, fell out. One injured.

May 17, 1926, locomotive 4951, Belzoni, Miss. Side rod broke and rear end of broken rod extended through the cab deck floor; old fracture in side rod. One injured.

Seven accidents; seven injured.

INTERNATIONAL-GREAT NORTHERN RAILROAD:

August 17, 1925, locomotive 223, Cotulla, Tex. Boiler check-valve cage blew out due to threads in valve body being worn and body stretched and out of round; after this accident the same cage was again placed in the valve and blew out the next day. One injured.

One accident; one injured.

KANSAS CITY SOUTHERN RAILWAY:

** August 4, 1925, locomotive 564, Blanchard, La. Clamp on feed-water hose became loose. One injured.

September 11, 1925, locomotive 800, Kansas City, Mo. Injector steam-pipe brazing collar broke; steam pipe extended into collar only to point where break occurred. One injured.

June 23, 1926, locomotive 709, near Frierson, La. Squirt hose blew off nipple due to not being properly clamped; end of squirt pipe pointed toward fireman's seat in cab. One injured.

Three accidents; three injured.

LEHIGH VALLEY RAILROAD:

August 26, 1925, locomotive 1394, Cortland, N. Y. Fire hose burst. One injured.

August 27, 1925, locomotive 3127, Irvington, N. J. Fire hose burst. One injured.

October 6, 1925, locomotive 2017, near Conway, Pa. Flue failed due to having been excessively and improperly expanded at front flue sheet. Two injured.

** October 24, 1925, locomotive 464, Coxtown, Pa. Fireman's cab seat dropped down account of nut lost out of bracket bolt allowing bolt to work out. One injured.

October 27, 1925, locomotive 365, Falling Springs, Pa. Lubricator drain plug broke off while attempting to tighten; threaded portion of plug cracked

40 per cent of cross-sectional area; body of plug and valve handle badly mutilated by use of tools in tightening. One injured.

February 13, 1926, locomotive 1153, Smithboro, N. Y. Crown-sheet failure caused by overheating due to low water. Two injured.

May 29, 1926, locomotive 1678, Picton, N. J. Cylinder head blew out; crosshead arm bolts failed, permitting valve gear to become disengaged which allowed steam to become trapped in cylinder. One injured.

Seven accidents; nine injured.

LOS ANGELES & SALT LAKE RAILROAD:

January 18, 1926, locomotive 6079, near Carp, Nev. Crown-sheet failure caused by overheating due to low water. One injured.

One accident; one injured.

LOUISVILLE & NASHVILLE RAILROAD:

**July 2, 1925, locomotive 176, near Elizabethtown, Ky. Reverse lever difficult to operate, account of counterbalance spring improperly adjusted. One injured.

July 9, 1925, locomotive 1204, Keego, Ala. Gauge cock drip pan located too near reverse lever, allowing insufficient clearance when lever was in forward corner. One injured.

**July 14, 1925, locomotive 1785, De Coursey, Ky. Grate shaker bar broke at old flaw at top of pocket. One injured.

August 9, 1925, locomotive 1770, Garnett, Ky. Cross-head pin worked out, due to nut working off. One injured.

August 11, 1925, locomotive 1195, Fariston, Ky. Insufficient clearance between reverse lever and gauge-cock dripper. One injured.

August 19, 1925, locomotive 1368, Petain, Ky. Injector steam pipe spanner nut broke. One injured.

September 11, 1925, locomotive 1012, Summertown, Tenn. Reverse lever came out of quadrant and caught engineer's finger while he was tightening loose nut on reverse lever latch bolt; key missing from latch bolt. One injured.

**September 15, 1925, locomotive 246, near Franklin, Ky. Defective shoveling sheet. One injured.

October 5, 1925, locomotive 1580, Jemison, Ala. Insufficient clearance between ash-pan lever and exhaust pipe to stoker engine. One injured.

October 7, 1925, locomotive 1447, South Altro, Ky. Spring hanger pin broke, due to being badly worn, causing derailment of front pair of driving wheels. One injured.

October 14, 1925, locomotive 1224, McGehees, Ala. Fire door closed catching fireman's hand; fire-door catch worn so that it would not hold door in open position. One injured.

October 25, 1925, locomotive 307, Iron City, Tenn. Front end of left bottom guide dropped down, account of guide block pin being broken off, breaking guide yoke and loosening guide; guide block pin had been broken for some time and guides reported on October 3, 6, and 24. One injured.

**November 17, 1925, locomotive 1136, Greenville, Ala. Hook broke off fire rake, causing fireman to fall back against coal gate. One injured.

November 18, 1925, locomotive 1541, Hartsell, Ala. Crown sheet failure caused by overheating due to low water; no contributory causes found. Two injured.

**November 25, 1925, locomotive 131, Murphy Junction, Ga. Main driving spring hanger broke. One injured.

**December 26, 1925, locomotive 1262, Memphis Junction, Ky. Insufficient clearance between reverse lever and brake valve air pipe. One injured.

December 28, 1925, locomotive 320, Chenowee, Ky. Reverse lever jumped out of quadrant account of reverse lever latch and notches in quadrant worn; stop block not applied to front end of quadrant permitting lever to strike air pipes. One injured.

**January 9, 1926, locomotive 1556, near Diana, Tenn. Signal equipment case bands pulled loose from cab, allowing signal case to fall from its position near top of cab. One injured.

January 22, 1926, locomotive 1185, Boyles, Ala. Throttle lever latch grip worn thin and sharp on the end, cutting hostler's hand. One injured.

February 25, 1926, locomotive 1797, near Brooks, Ky. Blower valve stem threads stripped. One injured.

**March 2, 1926, locomotive 1298, Emerson, Ga. Side rod broke in the bore for main crank-pin bushing due to old crack in rod. One injured.

April 4, 1926, locomotive 940, Radnor, Tenn. Lubricator drain pipe loose on drain cock and pipe not clamped. One injured.

May 21, 1926, locomotive 655, Paris, Ky. Cab apron hinge disconnected account of bolt broken or worked out. One injured.

**June 22, 1926, locomotive 2103, West Knoxville, Tenn. Squirt hose burst due to being worn. One injured.

Twenty-four accidents; twenty-five injured.

MACON, DUBLIN & SAVANNAH RAILROAD:

**March 14, 1926, locomotive 109 (place not given). Bolt in bell frame broken. One injured.

One accident; one injured.

MICHIGAN CENTRAL RAILROAD:

April 22, 1926, locomotive 7925, West Detroit, Mich. Bottom end of vertical handhold on cab gave way due to old fracture. One injured.

One accident; one injured.

MINNEAPOLIS & ST. LOUIS RAILROAD:

July 12, 1925, locomotive 330, Wallace, S. Dak. Water glass burst; shield also burst and flying glass caused injury to engineer; back plate in shield not perforated or other provision made for releasing sudden pressure due to failure of water glass. One injured.

One accident; one injured.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY:

March 8, 1926, locomotive 2620, near Chippewa Falls, Wis. Side rod broke. One injured.

May 24, 1926, locomotive 2412, North Fond du Lac, Wis. Air compressor throttle valve bonnet blew out. One injured.

Two accidents; two injured.

MISSOURI & NORTH ARKANSAS RAILWAY:

*August 7, 1925, locomotive 36, Arlberg, Ark. Ash-pan lever to blow-off cock became disconnected due to cotter key working out. One injured.

One accident; one injured.

MISSOURI-KANSAS-TEXAS LINES:

July 23, 1925, locomotive 648, Joplin, Mo. Bonnet blew out of injector starting valve, due to being too small for proper fit. One injured.

**August 21, 1925, locomotive 383, near Kipling, Tex. Pane in cab window fell out. One injured.

January 27, 1926, locomotive 263, St. Jo, Tex. Flange broke off injector steam pipe collar, due to defective brass casting. Two injured.

February 19, 1926, locomotive 501, Wekiwa, Okla. Back cylinder head blew out, due to old flaw in casting at joint. One injured.

March 15, 1926, locomotive 725, near Lakenon, Tex. Engine and first 12 cars derailed and turned over, caused by stuck wedge on left front driver of locomotive. One injured.

June 9, 1926, locomotive 281, San Antonio, Tex. Blow-off cock stuck open. One injured.

Six accidents; seven injured.

MISSOURI PACIFIC RAILROAD:

*July 3, 1925, locomotive 163, Coffeyville, Kans. Spring hanger broke, causing derailment of locomotive. One injured.

July 19, 1925, locomotive 64, Hoxie, Ark. Grate-shaker lever disconnected from reach rod account of pin working out, due to cotter key losing out. One injured.

July 21, 1925, locomotive 6427, Eads, Colo. Adjusting screw blew out of air cylinder to fire door. One injured.

August 15, 1925, locomotive 1520, Atchison, Kans. Injector overflow cap blew out. One injured.

*September 12, 1925, locomotive 1704, Plattsmouth, Nebr. Train came to sudden stop, caused by defective air pump on engine. One injured.

October 24, 1925, locomotive 1302, near Murta, Ark. Automatic fire door stuck open; fire-door handle bent and badly battered from frequent use of fireman's shovel or pick in closing fire door; fire door reported not working properly on October 15, 16, 21, and 22, and each report indicated repairs were made. One injured.

*October 30, 1925, locomotive 9512, Jefferson City, Mo. End of footboard gave way under the weight of switchman. One injured.

November 22, 1925, locomotive 7501, Herrin, Ill. Shaker bar slipped off post due to improper fit. One injured.

*December 8, 1925, locomotive 2657, Enoka, La. Eccentric strap blade became disconnected. One injured.

*December 12, 1925, locomotive 1431, Durand, Kans. Stoker reversed account of being broken. One injured.

*December 30, 1925, locomotive 5506, Everest, Kans. Injured while reversing engine account of cab so constructed that back board will not clear the operator's arm when lever is in back motion. One injured.

*February 22, 1926, locomotive 2372, Chicot, Ark. Pin securing fire door came out, allowing fire door to come open. One injured.

*February 28, 1926, locomotive 1206, Prescott, Ark. Squirt hose burst. One injured.

*March 2, 1926, locomotive 415, Alexandria, La. Cab window fell out and struck employee. One injured.

March 31, 1926, locomotive 9306, Du Po, Ill. Washout plug blew out while attempting to tighten under pressure; plug applied cross-threaded and threads defective. One injured.

March 31, 1926, locomotive 437, Atchison, Kans. Nuts worked off eyebolt holding bell, bell clapper and crossarm to yoke; eyebolt was poor fit and threads were badly worn and no cotter key in bolt. One injured.

**April 11, 1926, locomotive 89, Dexter, Kans. Reverse lever unlatched and went forward suddenly catching engineer's foot. One injured.

**April 20, 1926, locomotive 2396, Monticello, Ark. Jacket band standing away from jacket permitted engineer's finger to be caught in the opening while he was reversing engine. One injured.

*April 26, 1926, locomotive 449, McGehee, Ark. Insufficient clearance between reverse lever and cab. One injured.

June 26, 1926, locomotive 1273, Benton, Ark. Side rod broke; No. 2 pair of driving wheels were $\frac{3}{8}$ -inch out of quarter. One injured.

Twenty accidents; 20 injured.

MOBILE & OHIO RAILROAD:

*October 27, 1925, locomotive 542, Wheelers, Miss. Insufficient clearance between reverse lever and strainer cage in air pipe to fire door. One injured.

**November 13, 1925, locomotive 237, Waynesboro, Miss. Reach rod to back section of grates broke off at connection to grate bar. One injured.

May 13, 1926, locomotive 381, Maplesville, Ala. Return spring in independent brake valve inoperative; hand caught between reverse lever and independent brake valve handle in quick application position. One injured.

Three accidents; three injured.

NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY:

**July 31, 1925, locomotive 653, Stevenson, Ala. Fell from running board on account of loose handrail. One injured.

*October 17, 1925, locomotive 551, Graysville, Ga. Locomotive, tender, baggage, and express cars were derailed and turned over and passenger coaches and diner were derailed, caused by excessive lateral due to hub liner missing from the right rear engine truck wheel. Fifteen injured.

October 23, 1925, locomotive 604, Life, Tenn. Injector steam pipe broke off at throttle due to improper application; metal in collar crystallized and old fracture extended almost the entire circumference of collar. One injured.

Three accidents; 17 injured.

NEW ORLEANS GREAT NORTHERN RAILROAD:

*September 17, 1925, locomotive 70, Foxworth, Miss. Squirt hose valve worked open. One injured.

November 17, 1925, locomotive (G. S. Lbr.) 7, Varnado, La. Crown-sheet failure caused by overheating due to low water; no contributory causes found. One injured.

Two accidents; two injured.

NEW YORK CENTRAL—EAST:

*December 11, 1925, locomotive 2617, Sullivan, N. Y. Engine truck derailed, caused by insufficient weight on truck; tires of truck wheels had been turned several times and reduced in diameter, permitting truck to set lower and take weight off of center casting. One injured.

**January 22, 1926, locomotive 588, East Buffalo, N. Y. Driving-wheel tire broke, derailling locomotive; tire was worn thin and had been shrunk too tight on wheel center and metal partially crystallized. One injured.

January 27, 1926, locomotive 3267, North Port Byron, N. Y. Crown sheet failure, caused by overheating due to low water; no contributory causes found. Two killed.

March 5, 1926, locomotive 676, Watertown, N. Y. Crown sheet failure, caused by overheating due to low water; top water-glass valve was found practically closed and drain valve open two turns at time of investigation. Two injured.

**June 19, 1926, locomotive 2637, Utica, N. Y. Lubricator drain pipe loose, due to poor threads, allowing drain pipe to swing around. One injured.

Five accidents; two killed, five injured.

NEW YORK CENTRAL—WEST:

October 28, 1925, locomotive (T. & O. C.) 9665, Whitmore, Ohio. Throttle came open, account of weak spring in throttle lever latch, allowing locomotive to move and collide with another locomotive. One injured.

February 12, 1926, locomotive 5158, Schnieder, Ill. Ash-pan dump lever was too long, permitting lever to foul on steam end of stoker; lever was 30 $\frac{1}{4}$ inches long, although blue print provides for lever 24 inches in length. One injured.

**April 19, 1926, locomotive 5656, Missal, Ill. Shaker bar slipped off post, due to improper fit. One injured.

Three accidents; three injured.

NEW YORK, CHICAGO & ST. LOUIS RAILROAD:

**July 14, 1925, locomotive 115, Bellevue, Ohio. Throttle lever quadrant loose and out of alignment with throttle lever latch, allowed it to disengage and fly open. One injured.

August 26, 1925, locomotive 63, Cleveland, Ohio. Water glass and panel of water glass shield broke, resulting in fireman being cut by glass and scalded by steam. One injured.

November 29, 1925, locomotive 901, near Jefferson, Ind. Crown sheet failure, caused by overheating due to low water; left tank valve strainer stopped up with waste, restricting the flow of water. Three injured.

January 12, 1926, locomotive 865, near Charleston, Ill. Reverse lever very hard to handle, account of valves not properly lubricated or properly balanced; valves reported blowing on January 8, 9, 10, and 11, and "reverse lever jumps all the time" was reported on January 10 and 11. One injured.

Four accidents; six injured.

NEW YORK, NEW HAVEN & HARTFORD RAILROAD:

*July 21, 1925, locomotive 1094, Berlin, Conn. Insufficient clearance between reverse lever and reducing valve. One injured.

August 6, 1925, locomotive 3500, Providence, R. I. Lubricator filling plug blew out; plug was not standard and could be inserted half way before threads took hold; plug had 16 threads and lubricator body had 14 threads per inch. One injured.

August 11, 1925, locomotive 3325, Fair Haven, Conn. Back end main rod brass broke and a piece was thrown into cab, striking fireman; this bearing reported defective on August 4, 7, 8, 9, and 10. One injured.

August 26, 1925, locomotive 221, New Bedford, Mass. Expansion pad stud blew out; stud badly worn and corroded and had been screwed into sheet only three-eighths inch. One injured.

**August 28, 1925, locomotive 823, between Mansfield and East Roxboro, Mass. Grate shaker became disconnected, account pin in shaker arm being lost out. One injured.

October 27, 1925, locomotive 354, Higganum, Conn. Flue broke off at defective safe end weld; flue had been leaking previous to accident. One injured.

December 2, 1925, locomotive 300, South Worcester, Mass. Reverse lever unlatched and flew back striking engineer; teeth in lever latch worn and stop block on quadrant not properly applied. One injured.

January 18, 1926, locomotive 3221, St. Elmo, N. Y. Lug broke off wearing-plate retainer, allowing wearing plate to be thrown from left stoker head and strike employee who was on seat box; stoker head improperly lubricated which allowed wearing face of retaining ring to become scored which caused undue strain on retaining-ring lug. One injured.

January 21, 1926, locomotive 2458, Boston, Mass. Flue broke off at defective safe end weld. One injured.

January 25, 1926, locomotive 1335, Valley Falls, R. I. Grate shaker lever disconnected account of pin working out. One injured.

February 12, 1926, locomotive 354, Belamose, Conn. Flue broke off at defective safe end weld; welding mandrel used too small; flue showed evidence of leakage for some time. One injured.

April 27, 1926, locomotive 2447, Braintree, Mass. Flue broke off inside of front flue sheet at marks left by expander; flue corroded and $\frac{1}{8}$ -inch in thickness where break occurred. One injured.

June 26, 1926, locomotive 3346, Kingston, R. I. Crown-sheet failure caused by overheating due to low water; right and left tank valves not in full open position. Three killed, four injured.

Thirteen accidents; 3 killed, 16 injured.

NORFOLK & WESTERN RAILWAY:

November 3, 1925, locomotive 1711, Pembroke, Va. Flue broke off at defective safe end weld. One injured.

December 24, 1925, locomotive 787, Bond Hill, Ohio. Crown-sheet failure while in charge of engine watchman, caused by overheating due to low water; no contributory causes found. One killed.

February 19, 1926, locomotive 820, Portsmouth, Ohio. Crown-sheet failure; low water; no contributory causes found. One killed, two injured.

March 16, 1926, locomotive 1017, near Macon, Ohio. Tender truck axle broke due to old fracture covering approximately two-thirds of cross-sectional area causing derailment of tender, second locomotive and two cars. Two injured.

Four accidents; two killed, five injured.

NORTHERN PACIFIC RAILWAY:

August 30, 1925, locomotive 2163, Sterling, N. Dak. Crosshead union link plate broke. One injured.

October 10, 1925, locomotive 1766, Reed Point, Mont. Ash pan rod became disconnected account of rod pins not properly secured. One injured.

**November 26, 1925, locomotive 1730, Livingston, Mont. Water-glass spindle turned entirely out of boiler fitting. One injured.

**March 19, 1926, locomotive 2243, Mandan, N. Dak. Stop missing from front end of reverse-lever quadrant allowing reverse lever to strike boiler head. One injured.

**March 27, 1926, locomotive 1798, near Lagoda, N. Dak. Left main crank pin broke due to old fractures covering approximately 80 per cent of cross-sectional area. One injured.

Five accidents; five injured.

OREGON SHORT LINE RAILROAD:

**November 23, 1925, locomotive 577, Blackfoot, Idaho. Rung in safety ladder on tender missing causing employee to fall; side members of ladder were distorted and another rung was loose. One injured.

One accident; one injured.

OREGON-WASHINGTON RAILROAD & NAVIGATION CO.:

October 7, 1925, locomotive 2102, Nolin, Oreg. Head of main air reservoir blew out. One injured.

One accident; one injured.

PENNSYLVANIA RAILROAD SYSTEM:

July 1, 1925, locomotive 4659, Baden, Pa. Right front driver wheel broke into four pieces and sudden application of brakes caused derailment of cabin car; tire improperly applied. One injured.

July 2, 1925, locomotive 1336, Pittsburgh, Pa. Cab door slid shut, catching fireman's hand against fire hook; no provision for fastening cab doors open. One injured.

July 3, 1925, locomotive 721, Pavonia, N. J. Exhaust port drains were stopped up, permitting an accumulation of hot water in exhaust ports which was ejected from smoke stack when locomotive was given steam and began to move. Dry pipe was reported leaking on June 22 and 26. One injured.

July 6, 1925, locomotive 414, Olean, N. Y. Squirt hose parted at splice, due to being insecurely clamped. One injured.

**July 6, 1925, locomotive 4130, Montour Falls, N. Y. Front coupler casting bolts broke, allowing coupler to fall to ground. One injured.

July 9, 1925, locomotive 8691, Toledo, Ohio. Defective rivet blew out of door sheet flange while being caulked under pressure. One injured.

July 10, 1925, locomotive 5180, Baltimore, Md. Shovel caught in draw bar pin hole; design of draw bar pin had been changed and no provision made for closing old hole in shovel sheet. One injured.

July 14, 1925, locomotive 968, Canton, Ohio. Squirt-hose valve stopped up; bonnet nut on valve was cracked. One injured.

July 14, 1925, locomotive 7181, Lewis Center, Ohio. Squirt hose blew off, due to being insecurely fastened. One injured.

July 15, 1925, locomotive 7433, Akron, Ohio. Squirt hose came off connection, due to being insecurely clamped; nipple pointed toward center of deck. One injured.

July 19, 1925, locomotive 7461, Conway, Pa. Headlight turbine burst, due to excessive speed caused by generator throttle valve sticking open, account of corrosion and lack of lubrication. One injured.

July 23, 1925, locomotive 1630, near Tuxedo, Md. Struck by eccentric-rod oil-cup top, which came out and was thrown from fast-moving locomotive. One injured.

July 23, 1925, locomotive 1164, East Greensburg, Pa. Flue broke off at front flue sheet, due to being badly pitted and thinned. One injured.

July 29, 1925, locomotive 4309, Canton, Ohio. Squirt-hose valve stopped up by a piece of rubber fabric under valve seat and in body of valve. One injured.

**August 5, 1925, locomotive 4272, Radebaugh, Pa. Tender brake rigging came down account of broken brake hanger and brake beam came in contact with train line, parting hose between tender and first car and causing a sudden stop. One injured.

**August 5, 1925, locomotive 7195, Effingham, Ill. Reverse lever difficult to operate; faces on valves and valve seats badly cut and lever and quadrant worn; improper treatment of water caused water to foam badly and wash lubrication from valves. One injured.

August 7, 1925, locomotive 9979, Freedom, Pa. Squirt-hose nipple blew out, due to being improperly secured. One injured.

August 8, 1925, locomotive 7195, Effingham, Ill. Reverse lever difficult to operate; faces on valves and valve seats badly cut and lever and quadrant worn; improper treatment of water caused water to foam badly and wash lubrication from valves. One injured.

*August 10, 1925, locomotive 8670, Clymers, Ind. Overflow pipe on locomotive 8670 dropped down and split switch, causing derailment of locomotive and seven cars of train following. Three injured.

**August 10, 1925, locomotive 2300, South Akron, Ohio. Driver-brake cylinder push-rod holder broke off at boss on piston head, resulting in loss of braking power and causing collision with another locomotive. One injured.

**August 12, 1925, locomotive 9351, Canton, Ohio. Shaker bar slipped off post, due to improper fit. One injured.

*September 1, 1925, locomotive 2869, Downingtown, Pa. Squirt hose blew off account of being insecurely clamped. One injured.

September 1, 1925, locomotive 9892, Cincinnati, Ohio. Throttle flew open and stuck due to lost motion in throttle rigging and to radius of lever latch being different from that of quadrant. One injured.

*September 3, 1925, locomotive 7791, Pittsburgh, Pa. Locomotive derailed causing sudden stop; Nos. 1 and 2 driving-box wedges were stuck and there was unequal distribution of weight on engine truck account of liners missing between center castings. One injured.

*September 4, 1925, locomotive 8538, Clarke, Ind. Fire hose burst account of being deteriorated. One injured.

September 10, 1925, locomotive 7123, Columbus, Ohio. Shaker bar slipped off lever due to improper fit. One injured.

September 11, 1925, locomotive 338, Lambertsville, N. J. Loose driving wheel tire worked out on wheel center, causing derailment of engine, tender, and first car. One injured.

September 15, 1925, locomotive 4394, Mansfield, Ohio. Grate shaker lever became disconnected from connecting rod due to pin working out. One injured.

September 23, 1925, locomotive 6283, West Apollo, Pa. Insufficient clearance between reverse gear operating wheel and air pipe. One injured.

**February 3, 1926, locomotive 6283, Conemaugh, Pa. Squirt-hose pipe split. One injured.

February 7, 1926, locomotive 8667, Toledo, Ohio. Circular handrail on front end gave way as stud in middle column pulled out, account of nut burned off, allowing employee to fall back on couplers. One injured.

February 11, 1926, locomotive 9536, Eaton, Ohio. Reverse lever fouled injector feed pipe; no stop block in reverse-lever quadrant. One injured.

February 12, 1926, locomotive 5026, Wawa, Pa. Drain-cock nipple to lubricator broke off while attempting to tighten; nipple had been leaking badly. One injured.

**February 12, 1926, locomotive 788, Terre Haute, Ind. Slipped on cab apron which was worn smooth. One injured.

February 15, 1926, locomotive 3329, near Lilly, Pa. Flue broke off at safe end weld; overheated in welding. One injured.

February 15, 1926, locomotive 8476, Logansport, Ind. Cylinder casing stud blew out of right front cylinder head account of being too small for proper fit in hole in cylinder head. One injured.

February 15, 1926, locomotive 4315, Altoona, Pa. Water glass burst; water-glass gasket improperly applied causing unusual stress on upper part and frame defective. One injured.

February 17, 1926, locomotive 8398, Indianapolis, Ind. Handrail over sloping back of tender broke due to being deteriorated and eaten away to approximately one thirty-second inch in thickness at point of failure. One injured.

**February 21, 1926, locomotive 1385, Mill Hall, Pa. Driving-wheel tire came off due to not having been properly tightened; tire was reported working on February 18 and defect checked "deferred" and on February 20 tire was reported "loose." One injured.

February 24, 1926, locomotive 2457 (place not given). Throttle very stiff due to not having sufficient preliminary lift. One injured.

**February 25, 1926, locomotive 2678, Lowell, Pa. Throttle lever very hard to operate; throttle-valve stem had off-set to line up with throttle rigging and in replacing same it had been reversed, causing stem to bind. One injured.

**February 26, 1926, locomotive 8529, Sandy Hook, Ind. Tumbling arm turned on shaft account of key losing out. One injured.

February 27, 1926, locomotive 4434, near Altoona, Pa. Left front driving box stuck and springs not properly equalized caused derailment of freight locomotive which swerved to adjacent track and was struck by a passenger train drawn by two locomotives both of which were derailed and turned over; five cars in freight train and three cars in passenger train were also derailed. Two killed; two injured.

*March 7, 1926, locomotive 4239, Gray, Pa. Ash-pan rods came down. One injured.

March 13, 1926, locomotive 8428, Madison, Ind. Fire-door foot pedal broke in weld, allowing doors to close unexpectedly; foot pedal electrically welded in bend $2\frac{1}{2}$ inches from air valve that operated fire door. One injured.

March 19, 1926, locomotive 3272, Denholm, Pa. Attempted to fill lubricator and steam could not be shut off at condensing valve account of improper repairs having been made to lubricator, and steam from air compressor could not be shut off account of stem to throttle being bent. One injured.

March 23, 1926, locomotive 3190, near Butler Junction, Pa. Driving-spring hanger pin broke, worked out and caught on driving wheel, forcing hanger against a washout plug and knocking it out of wrapper sheet. One injured.

March 29, 1926, locomotive 41, Butler Junction, Pa. Engine moved forward unexpectedly caused by leaking throttle and openings in three cylinder cocks completely stopped up; throttle valve reported leaking bad on March 11, 12, 16, 18 (two times), 19, and 27; cylinder cocks also reported on March 27. One injured.

April 10, 1926, locomotive 402, Wilmington, Del. Bolt came out of cab-apron hinge permitting apron to drop down between engine and tender. One injured.

April 11, 1926, locomotive 1972, Jersey Shore, Pa. Cover over drawbar pin hole in shoveling sheet was of one-half-inch iron plate, causing interference with fireman's shovel. One injured.

April 11, 1926, locomotive 8070, Marion, Ohio. Valve seat of air operated fire door leaking which allowed fire door to close unexpectedly. One injured.

May 2, 1926, locomotive 7791, Beaver Falls, Pa. Main crank pin broke due to old fractures covering approximately 70 per cent of cross-sectional area. One injured.

May 9, 1926, locomotive 4510, Baden, Pa. Feed-water pump delivery pipe collar broke off due to old break extending over 20 per cent of its circumference; pipe reported leaking five times just prior to failure. One injured.

May 11, 1926, locomotive 7167, Emsworth, Pa. Cab apron forced upward when locomotive rounded curve due to rivets through lower section of hinge fouling on tender deck; apron reported on April 9, May 11 (previous to accident), 12, and 14 and found defective when inspected on May 24. One injured.

**May 19, 1926, locomotive 2033, Enola, Pa. Superheater tube failed at defective safe end weld. One injured.

May 21, 1926, locomotive 5171, Washington, D. C. Squirt hose burst due to being worn and burned. One injured.

May 25, 1926, locomotive 7938, near Port Washington, Ohio. Squirt hose valve worked open. One injured.

May 28, 1926, locomotive 4322, Lucas, Ohio. Injector delivery pipe separated at union account of coupling nut blowing off; union had been leaking and rubber gasket applied which partly filled the coupling nut so that it was held by only three threads; threads in nut stripped and loose fit. One injured.

June 4, 1926, locomotive 468, Holland, N. Y. Flue broke off at safe end weld due to improper welding. One injured.

June 9, 1926, locomotive 7004, near Beaver, Pa. Whistle rope broke account of being worn and deteriorated by heat due to rubbing on safety valve. One injured.

June 22, 1926, locomotive 8036, Chicago, Ill. Loose tire on left No. 1 driving wheel caused derailment of locomotive; insufficient lateral on driving boxes. One injured.

June 27, 1926, locomotive 7376, Enon, Pa. Dowel pin of valve motion link block plate worked out, allowing plate to foul on eccentric rod and on link saddle when locomotive was reversed; valve gear reported on June 5, 7 (twice), 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 20, 22, 23, 24, and 26. One injured.

One hundred and five accidents; 5 killed, 116 injured.

PEORIA & PEKIN UNION RAILWAY:

*January 29, 1926, locomotive 74, Peoria, Ill. Squirt hose burst. One injured.

One accident; one injured.

PERE MARQUETTE RAILWAY:

September 12, 1925, locomotive 483, Detroit, Mich. Crown-sheet failure caused by overheating due to low water; opening in bottom water glass cock completely closed by gasket. One injured.

October 12, 1925, locomotive 319, Wyoming, Mich. Broken radial stay bolt blew out while being calked under pressure; threads on bolt and in sheet badly worn showing bolt had been loose for some time and head of bolt badly calked indicating frequent leakage; locomotive had just received monthly and quarterly inspections, at which times the condition of stay bolts was reported "Good." One injured.

Two accidents; two injured.

PITTSBURGH & LAKE ERIE RAILROAD:

**March 9, 1926, locomotive 192, McKees Rocks, Pa. Insufficient clearance between cab handhold and gangway step, allowing step and handhold to come in contact when on curve. One injured.

One accident; one injured.

PITTSBURGH, SHAWMUT & NORTHERN RAILROAD:

*September 14, 1925, locomotive 54, Byrnedale, Pa. Flue burst due to pitting. One injured.

One accident; one injured.

PORT UTILITIES COMMISSION OF CHARLESTON, S. C.:

**January 12, 1926, locomotive 2, Charleston, S. C. Crown-sheet failure; low water; water-glass lamp missing (accident occurred at 7 p. m.); right boiler check partially embedded in mud, causing it to stick in valve cage; right tank valve closed account of leaking gooseneck gasket. One injured.

One accident; one injured.

READING Co.:

August 15, 1925, locomotive 783, Excelsior, Pa. Grate shaker bar slipped off, due to being too large, causing fireman to fall from gangway. One injured.

**August 26, 1925, locomotive 1306, Pencoyd, Pa. Reverse lever flew back and struck engineer; reverse lever latch spring was reported on August 26, 27, 31, September 2, 8, 12, and 14, after the accident had occurred. One injured.

**September 3, 1925, locomotive 1512, Gettysburg, Pa. Grate shaker bar slipped off due to improper fit of wrench on grate fit and to grate fit being too short. One injured.

September 24, 1925, locomotive 1315, Tamaqua, Pa. Coal board dropped out of place while fireman was climbing over it due to coal board being too short for proper fit. One injured.

**November 13, 1925, locomotive 1669, Monocacy, Pa. Grate shaker lever broke. One injured.

March 28, 1926, locomotive 271, Neversink, Pa. Sheet-iron plate forming section of cab roof over dome fell off and struck fireman who was on running board; plate had been removed for boiler inspection and replaced in position but not secured by any of the bolts provided for that purpose. One injured. Six accidents; six injured.

ST. LOUIS-SAN FRANCISCO RAILWAY:

July 2, 1925, locomotive 214, Francis, Okla. Ash pan slide wrench broke at defective weld in handle. One injured.

July 15, 1925, locomotive 1300, St. Louis, Mo. Drain valve to water glass blew out due to flange on nut holding bonnet of drain valve to valve body giving way. One injured.

October 31, 1925, locomotive (C. of Ga.) 128, East Thomas, Ala. Nuts came off piston rod due to threads on nut and piston rod being badly worn, allowing piston rod to come out of crosshead and knock out front cylinder head. One injured.

*January 12, 1926, locomotive 98, Lowry City, Mo. Equalizer bolt broke. One injured.

January 30, 1926, locomotive 611, near Jasper, Okla. Grate bearer stud blew out account of being improperly applied. One injured.

February 20, 1926, locomotive (I. C.) 877, East Thomas, Ala. Flue broke off in prosser mark in back flue sheet; flue practically cut off with prosser when applied. One injured.

April 23, 1926, locomotive 816, Okmulgee, Okla. Water glass broke and water-glass shield blew off, striking engineer. One injured. Seven accidents; seven injured.

SEABOARD AIR LINE RAILWAY:

*July 1, 1925, locomotive 520, Savannah, Ga. Piston rod broke, knocking out cylinder head. One injured.

*July 16, 1925, locomotive 391, Angel, Ala. Spring hanger broke, caused by inside hanger on front spring slipping off pin account of cotter key shearing off. One injured.

*August 7, 1925, locomotive 730, Wildwood, Fla. Nuts worked off both valve stem gland studs, catching motion of valve and throwing lever in opposite direction, striking engineer. One injured.

*August 26, 1925, locomotive 844, Exley, Ga. Blow-off cock leaking. One injured.

October 20, 1925, locomotive 10, near Hull, Ga. Shaker bar slipped off post; post burred, causing improper fit. One injured.

November 14, 1925, locomotive 405, Raleigh, N. C. Connecting plug blew out of end of expansion tube of stoker engine steam gauge. One injured.

January 2, 1926, locomotive 706, Ocala, Fla. Grate rest stud blew out. One injured.

**January 4, 1926, locomotive 1035, Tallahassee, Fla. Bolts holding reverse lever in place sheared off. One injured.

**February 1, 1926, locomotive 319, Hampton, Fla. Grates disconnected account of pin in grate rigging having lost out. One injured.

February 14, 1926, locomotive 615, Aberdeen, N. C. Reverse gear very hard to handle; reversing gear reported defective on January 28, 30, February 1, 6, 7, 10, 11, and twice on February 15 (after the accident). One injured.

March 2, 1926, locomotive 185, Valrico, Fla. Crown-sheet failure caused by overheating due to low water. One injured.

**March 5, 1926, locomotive 348, Plains, Fla. Board in platform surrounding manhole on tank broke at decayed place, causing employee to fall. One injured.

**March 12, 1926, locomotive 302, Bowling, N. C. Reverse lever latch came out of quadrant, catching engineer's foot between lever and stop block at front end of quadrant; notches of lever latch worn. One injured.

**March 16, 1926, locomotive (C. H. & N.) 28, near Murdock, Fla. Main rod key came out and was thrown through cab window, striking engineer; set screw lost out and cotter key sheared off. One injured.

**March 18, 1926, locomotive 980, Savannah, Ga. Shaker bar slipped off post due to improper fit; fulcrum posts too short. One injured.

**April 13, 1926, locomotive 821, near Seminole, Fla. Hinge of cab apron gave way, allowing apron to work out of position and fireman to fall between engine and tender. One injured.

May 28, 1926, locomotive 495, Vigo, Ala. Stoker failed due to right choke fitting of steam line to elevator, being partially restricted with scale, reducing the steam pressure from a possible 50 pounds to 10 pounds, which allowed the elevator to become clogged; shifter lid of right elevator worked improperly in neutral position. One injured. Seventeen accidents; 17 injured.

SOUTHERN RAILWAY SYSTEM:

July 5, 1925, locomotive 8339, Cordele, Ga. Defective key bolt at back end of left main rod causing very bad pound; rods reported on June 3, 7, 19, 20, 28, and July 3. One injured.

**July 5, 1925, locomotive 4634, Inman, S. C. Whistle valve lever slipped off account of being broken. One injured.

July 11, 1925, locomotive 1346, Hobgood, Ala. Squirt hose blew off due to being insecurely clamped. One injured.

**July 21, 1925, locomotive 8231, near Mineola, Ga. Cab window glass broken. One injured.

**July 27, 1925, locomotive 7050, Chattanooga, Tenn. Hand rail gave way account of bolt securing column of hand rail to pilot beam losing out. One injured.

**July 29, 1925, locomotive 154, Rhodo, N. C. Driving spring slipped off saddle account of dowel pin worn and sunk into top of saddle, causing derailment of front driving wheels. One injured.

August 3, 1925, locomotive 1232, near Greensboro, N. C. Reverse lever latch jumped out of quadrant and went forward catching engineer's ankle between lever and piping due to insufficient clearance. One injured.

September 9, 1925, locomotive 6195, Cincinnati, Ohio. Fire hose blew off nozzle due to not having been clamped. One injured.

September 13, 1925, locomotive 1853, Atlanta, Ga. Main crank pin broke due to old flaw. One injured.

September 28, 1925, locomotive 345, Tusculumbia, Ala. Bell crank to throttle lever broke and forced lever back, catching fireman's hand between lever and brake valve. One injured.

October 5, 1925, locomotive 2004, New Albany, Ind. Reverse gear would not operate in forward position and when engineer lifted latch to put it in back motion the lever flew back suddenly; right go-ahead eccentric blade was badly bent and right valve yoke bent. One injured.

October 7, 1925, locomotive 4554, Bremen, Ga. Cotter key securing handrail on side of smoke box worked out, allowing handrail to come out of column, causing fireman to fall to ground in front of locomotive and truck wheel ran over his leg. One injured.

October 17, 1925, locomotive 4531, Kennedy, Ala. Flue broke off at safe end weld; overheated in welding. One injured.

**November 9, 1925, locomotive 366, Browns, Ala. Street ell blew off squirt-hose pipe; boiler check valve stuck open allowing pressure to build up. One injured.

November 9, 1925, locomotive 1029, Jennings, Fla. Flue broke off at defective safe end weld. One injured.

December 3, 1925, locomotive 1114, Sofkee, Ga. Squirt-hose pipe disconnected. One injured.

December 11, 1925, locomotive 707, White, Tenn. Top end of vertical hand-hold pulled loose from tender due to rivet securing it being improperly applied. One injured.

**December 11, 1925, locomotive 469, Belton, S. C. Molding around engine tank became loose. One injured.

**December 15, 1925, locomotive 6261, near Ludlow, Ky. Handrail broke in bend due to old fracture covering approximately two-thirds of cross-sectional area. One injured.

January 7, 1926, locomotive 657, Appalachia, Va. Stop block missing from front end of quadrant allowing insufficient clearance between reverse lever and valve of bell ringer. One injured.

January 21, 1926, locomotive 6879, Meridian, Miss. Defective brace stud securing short running board broke allowing running board to fall; front end of running board resting on cylinder bumper beam but not secured to it. One injured.

February 17, 1926, locomotive 4503, Parrish, Ala. Right front tender sill step broke off. One injured.

**February 28, 1926, locomotive 1326, Ellenwood, Ga. Wrist pin of right crosshead broke in old defect allowing main rod to come down, and the damage to track derailed locomotive and tender; metal of wrist pin crystallized at point of failure. Two injured.

**March 2, 1926, locomotive 8334, Macon, Ga. Grate shaker bar slipped off post due to improper fit. One injured.

March 5, 1926, locomotive 1659, Chattanooga, Tenn. Injector delivery pipe burst in a weak butt-welded seam. One injured.

March 11, 1926, locomotive 6293, Pine Knot, Ky. Pawl shifter of stoker elevator would not remain in its central and reverse position account of catch improperly adjusted. One injured.

March 12, 1926, locomotive 6192, Erlanger, Ky. Main rod broke through weld; overheated in welding. One injured.

**March 12, 1926, locomotive 760, Strasburg, Va. Spanner nut connecting boiler check to stopcock broke in two pieces when attempt was made to tighten under pressure; spanner nut of inferior material and poor design. One injured.

March 24, 1926, locomotive 1648, Atlanta, Ga. Spring hanger broke. One injured.

March 26, 1926, locomotive 8333, Elko, Ga. Grate shaker bar slipped off post due to improper fit. One injured.

April 2, 1926, locomotive 158, near Bogue Chitto, Ala. Crown-sheet failure caused by overheating due to low water; bottom gauge cock located only 2 $\frac{3}{8}$ inches above highest point of crown sheet. This was a deckless type locomotive with water glass located on left side of boiler back head and was so located as to render its reading very difficult by the engineer from his usual and proper place in the cab. One injured.

**April 5, 1926, locomotive 1339, near Westminster, S. C. Combination rod on engine broke due to old defect. One injured.

April 22, 1926, locomotive 8300, Lake City, Fla. Grates became disconnected. One injured.

*April 23, 1926, locomotive 4614, Flat Rock, N. C. Coal pick flew off handle and struck fireman on head. One injured.

June 9, 1926, locomotive 759, Pelion, S. C. Bolt came out of fire-door pedal account of cotter pin working out, allowing fire door to close unexpectedly. One injured.

June 16, 1926, locomotive 514, near Clover, Va. Flue broke off at safe end weld; overheated in welding. Two injured.

Thirty-six accidents; 38 injured.

SOUTHERN PACIFIC—LINES EAST:

December 21, 1925, locomotive (H. & T. C.) 25, Sherman, Tex. Crown-sheet failure, while in charge of engine watchman, caused by overheating due to low water; left boiler check leaking and valve seat shouldered; boiler checks reported on November 21, 26, 28, December 2, 3, 5, 6, 8, 9, 10, 12, 19, and 20; area of left injector feed pipe reduced approximately 40 per cent by accumulation of hard scale; entire crown sheet covered with excessive amount of scale. One injured.

*March 12, 1926, locomotive (M. L. & T.) 76, Lafayette, La. Brake rigging came down. One injured.

April 11, 1926, locomotive (M. L. & T.) 501, Pine Island, Tex. Whistle valve stuck open; valve spring broke, due to use of improper type valve caps and broken pieces of spring caught between valve and seat. One injured.

**May 30, 1926, locomotive (H. & T. C.) 561, Schriever, La. Scalded by hot water escaping from open end of steam-heat pipe on tender; heater pipe applied so as to form a pocket or water trap near end of tender; intermediate throttle valve and seat scored, permitting steam to leak by, which condensed and filled pocket; cut-out valve at rear of tender missing. One injured.

Four accidents; four injured.

SOUTHERN PACIFIC—LINES WEST:

**August 7, 1925, locomotive (C. P.) 2322, Walnut Grove, Calif. Foot caught between apron and ledge of cab which was so located as to easily catch a person's foot when apron was raised. One injured.

October 23, 1925, locomotive 2809, Comus, Nev. Brake pipe branch pipe nipple to distributing valve broke due to old fracture, throwing train brake into emergency. Two injured.

**December 17, 1925, locomotive 2350, Grants Pass, Ore. Insufficient clearance between set screw at front of reverse lever and foot rest at front of quadrant. One injured.

**December 26, 1925, locomotive 3622, Rawson, Calif. Extension handle to steam throttle to reversing gear became unfastened where secured with cotter key, account of cotter pin missing. One injured.

December 31, 1925, locomotive (E. P. & S. W.) 3323, Gallinas, N. Mex. Main crank pin broke, due to old fracture covering approximately two-thirds of cross-sectional area. One injured.

January 30, 1926, locomotive 2836, near Kodak, Nev. Squirt hose burst; hose badly deteriorated. One injured.

March 4, 1926, locomotive 1768, Brawley, Calif. Cab apron located too high, allowing insufficient clearance between apron and angle iron on bottom of cab running board. One injured.

March 6, 1926, locomotive 1809, Van Nuys, Calif. Blow-down valve leaking. One injured.

**April 10, 1926, locomotive 1221, San Jose, Calif. Main crank pin broke off just inside of middle connection bushing due to old fracture. One injured.

April 17, 1926, locomotive 2686, Gerber, Calif. Employee's foot caught between apron and ledge of locomotive deck; no means used to block entrance of a person's foot under the ledge. One injured.

**April 21, 1926, locomotive 1245, Los Angeles, Calif. Pin lifter disconnected while uncoupling locomotive from cars. One injured.

April 29, 1926, locomotive (C. P.) 1397, Walergera, Calif. Side rod broke. One injured.

June 13, 1926, locomotive 2752, Musina, Ariz. Heater cock on left injector became unscrewed and blew out when engineer attempted to tighten it. One injured.

June 17, 1926, locomotive 1143, Watsonville, Calif. Cross driving spring equalizer hanger broke, allowing footboard to drop and strike on rail. One injured.

Fourteen accidents; 15 injured.

TENNESSEE CENTRAL RAILWAY:

**July 10, 1925, locomotive 704, Carthage Junction, Tenn. Squirt hose blew off nipple due to loose clamp. One injured.

July 31, 1925, locomotive 604, Dayton, Tenn. Injector feed pipe loose at injector, causing injector to break; overflow pipe pointed outward 44 inches from ground. One injured.

Two accidents; two injured.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS:

September 22, 1925, locomotive 307, Madison, Ill. Squirt hose parted at splice. One injured.

**October 7, 1925, locomotive 112, Madison, Ill. Cylinder head casing studs worked out of place, allowing casing to foul cylinder cock rigging and open cylinder cocks. One injured.

**November 29, 1925, locomotive 301, St. Louis, Mo. Insufficient clearance between handle of shaker bar and fire door hand lever bolt. One injured.

February 4, 1926, locomotive 312, East St. Louis, Ill. Branch pipe fouled on arm of bell crank and loosened arm, causing bell ringer to be inoperative. One injured.

Four accidents; four injured.

TEXAS & PACIFIC RAILWAY:

February 26, 1926, locomotive 606, near Dothan, Tex. Front end throttle box broke, allowing steam to blow back through flue into firebox. One injured.

One accident; one injured.

UNION RAILROAD:

*October 12, 1925, locomotive 102, Coal Valley, Pa. Draw bar broke through eye due to old fracture. One injured.

One accident; one injured.

UNION PACIFIC RAILROAD:

August 12, 1925, locomotive 2223, Omaha, Nebr. Locomotive 2223 broke loose from leading locomotive account of defective lock block and badly worn knuckle at front end. Two injured.

October 17, 1925, locomotive 2832, near Topeka, Kans. Collar broke off injector steam pipe at throttle connection; collar of insufficient strength; steam pipe did not extend entirely through collar and was insufficiently braced. One injured.

March 19, 1926, locomotive (OSL) 2544, near Green River, Wyo. Main driving-wheel axle broke just beyond wheel fit, due to old fracture of more than 50 per cent of cross-sectional area. One killed, one injured.

Three accidents; one killed, four injured.

VICKSBURG, SHREVEPORT & PACIFIC RAILWAY:

October 4, 1925, locomotive 363, near Simsboro, La. Shaker bar slipped off post, due to improper fit. One injured.

October 19, 1925, locomotive 360, Forkville, La. Stop pin on reverse-lever quadrant located too far forward, allowing lever to strike air piping on back head and to come within 1 inch of back boiler head. One injured.

Two accidents; two injured.

VIRGINIAN RAILWAY:

November 20, 1925, locomotive 451, Garwood, W. Va. Crown-sheet failure caused by overheating, due to low water; No. 1 safety valve leaking; strainers missing over tank wells; engine reported blowing very badly on November 17, 18, and 19. One killed, four injured.

February 10, 1926, locomotive 512, East Gulf Mine, W. Va. Superheater flue broke off at defective safe end weld. One injured.

Two accidents; one killed, five injured.

WABASH RAILWAY:

**July 11, 1925, locomotive 1604, between Aladdin and Hull, Ill. Boiler check leaking. One injured.

September 8, 1925, locomotive 2444, Bluffs, Ill. Reverse lever jumped due to lug on lever controlling air admission to power reverse gear broken off, causing engineer's hand to be caught between lever and air pipe due to insufficient clearance; reverse gear reported defective on September 5, 6, and 7, and engine returned to service at time of accident without proper repairs having been made. One injured.

December 6, 1925, locomotive 604, Moberly, Mo. Water glass burst, breaking glasses in shield; cut by flying glass. One injured.

January 27, 1926, locomotive 616, near Oakley, Ill. Cab apron worn. One injured.

February 6, 1926, locomotive 2315, Griggsville, Ill. Squirt-hose valve leaking; valve seat and valve were cut and distorted. One injured.

March 4, 1926, locomotive 893, near Lovilia, Iowa. Crown-sheet failure caused by overheating due to low water; water glass too long and gasket closed opening in top water-glass cock. One injured.

**April 29, 1926, locomotive 2270, Chapin, Ill. Loose union in sand pipe. One injured.

**May 21, 1926, locomotive 2510, Ballou, Ill. Latch of lower coal gate worn and did not hold gate open. One injured.

**May 28, 1926, locomotive 2514, Sibley, Ill. Locomotive derailed due to left No. 2 driving tire becoming loose and caused derailment of 20 cars in train. Two injured.

Nine accidents; 10 injured.

WESTERN MARYLAND RAILWAY:

**July 12, 1925, locomotive 501, Big Pool, Md. Whistle stuck open due to spring breaking and part of spring lodging under valve. One injured.

May 27, 1926, locomotive 849, Deal, Pa. Boiler check stuck open and attempting to close check, knob turned on stop-cock spindle due to key missing and check-stop bonnet blew out; boiler check-valve wing broken and bonnet too small for check casing and threads worn. One injured.

Two accidents; two injured.

TABLE VIII.—Number of locomotives inspected, found

	Parts defective, inoperative or missing, or in violation of rules					
	International Great Northern	Interstate	Jacksonville Terminal	Kansas City Southern	Kansas City Terminal	Kansas, Oklahoma & Gulf
1 Air compressors						
2 Arch tubes	1	6		5		
3 Ash pans or mechanism		4				
4 Axles					1	
5 Blow-off cocks						
6 Boiler checks	1	2		3	1	
7 Boiler shells		4				
8 Brake equipment			11	1	1	
9 Cabs or cab windows	17	32	28	10	1	
10 Cab aprons or decks	1	9	10	7	4	
11 Cab cards	5	6			1	
12 Coupling or uncoupling devices			5	3	1	
13 Crossheads, guides, pistons or piston rods	2	1	3	3		
14 Crown bolts	1	37	3	1	2	
15 Cylinders, saddles, or steam chests			1			
16 Cylinder cocks or rigging	1	5	12	3	13	
17 Domes or dome caps		27	1	1	3	
18 Draft gear	1					
19 Draw gear	11	20	11	1		
20 Driving boxes, shoes, wedges, pedestals, or braces	5	14	11	2		
21 Fire-box sheets	4	25	15	2		
22 Flues	5	1	1			
23 Frames, tail pieces or braces, locomotive	1	2	1			
24 Frames, tender	3	32	10		2	
25 Gauges or gauge fittings, air	1	2	4			
26 Gauges or gauge fittings, steam	3	1	6			
27 Gauge cocks	12	4	7	1		
28 Grate shakers	6	10	16	1		
29 Handholds			2	2		
30 Injectors, inoperative	15	16	11	1		
31 Injectors and connections						
32 Inspections or tests not made as required	29	48	2	26	3	
33 Lateral motion	30	3	46	3	14	
34 Lights, cab or classification	2	9				
35 Lights, headlights						
36 Lubricator or shields			1	1		
37 Mud rings	3	2	4		2	
38 Packing nuts		4	2			
39 Packing, piston rod and valve stem	2	11	12	5	1	
40 Pilot or pilot beams		8	3			
41 Plugs or studs	2	5	5			
42 Reversing gear		1	1			
43 Rods, main or side, crank pins or collars	2	2	6			
44 Safety valves	13	84	14	1	3	
45 Sanders	6					
46 Springs or spring rigging	1	2	2	4	1	
47 Squirt hose	10	10	21	4	5	
48 Stay bolts	5	9	2			
49 Stay bolts, broken		1	2		1	
50 Steam pipes	2	31	61			
51 Steam valves	1	7	13			
52 Steps	1	6	6		1	
53 Tanks or tank valves	4	16	12			
54 Telltale holes	3	2	6	1		
55 Throttle or throttle rigging		8	2			
56 Trucks, engine or tralling	4	4	5		1	
57 Trucks, tender	7	40	20			
58 Valve motion	6	26	25	6	18	
59 Washout plugs	2	2	2	1		
60 Water bar or combustion flues	15	6	17	1	2	
61 Water glass, fittings or shield						
62 Wheels	14	6	9	1	2	
63 Miscellaneous—signal appliance, badge plates, brakes (hand)	23	9	16			
Number of defects	288	630	6	541	46	78
Locomotives reported	187	12	15	168	37	39
Locomotives inspected	245	60	13	317	32	40
Locomotives defective	68	59	4	135	17	13
Percentage of inspected found defective	28	98	31	43	53	33
Locomotives ordered out of service	18	22		27		

defective, and ordered from service, etc.—Continued

	Kentucky & Indiana Terminal	Lake Superior & Lake Superior Terminal & Transfer	Lake Terminal	Lehigh & Hudson River	Lehigh & New England	Lehigh Valley	Litchfield & Madisson	Long Island	Los Angeles & Salt Lake	Louisiana & Arkansas	Louisiana Railway & Navigation Co.	Louisville & Nashville	Louisville, Henderson & St. Louis	McKeesport Connecting	McCloud River	Maine Central	Maryland & Pennsylvania	
		1				6		1	10		14	52				1	1	
						3			1			1						
						2						8	1					
						8		4	5		2	12						
	1					13		3	29	1	3	29				2		
						55		12	7		7	43				4		
						29			4		20	187				6		
						12			6		2	62				13		
	1					1			6		1	39			3	4		
	2								2		2	14				4		
									2		1	9				6		
									6		1	6				3		
									3		1	48						
									7		1	155						
	2					29			6		1	106						
						1			4		6	6						
						4			6		5	79				4		
	1					5			7		16	241				2		
						9			1		6	120				1		
						28			5		28	170				2		
						7			2		2	21				1		
						6			2		1	61				5		
						8			1		1	164				1		
						7			17		4	112				5		
						10			4		3	19						
						1			3		6	53				9		
						33			3		12	53				3		
						1			2		2	2						
						1			9		3	241				11		
						6			6		1	38				4		
						46			24		7	28				27		
						14			10		8	38				6		
						48			1		6	21						
						3			1		12	1				5		
						7			5		19	2				3		
						3			3		3	19				1		
						17			3		10	10				3		
						8			1		9	47				3		
						11			6		2	47				1		
						5			4		4	45				2		
						8			6		4	57				3		
						5			4		1	154						
						9			1		1	111				3		
						70			7		38	111				3		
						3			1		1	2				1		
						4			9		3	11						
						3			4		1	220				14		
						66			32		4	21				1		
						7			4		1	21				1		
						8			1		9	47				16		
						11			6		10	32				1		
						5			5		4	52						
						8			4		2	20				6		
						18			30		5	20				4		
						22			7		5	76				4		
						3			30		5	180				12		
						7			7		1	5						
						25			7		4	20				2		
						23			2		12	159						
						33			16		10	25				19		
						7			3		2	35				4		
						36			13		5	83				1		
						27			1		8	102				8		
						2			5		2	61				5		
						5			16		4	54				2		
	19					11			5			3,989			10	223	59	
	24	32	11	17	41	64	942	12	156	223	41	68	1,353	42	16	16	227	15
	7	4	16	9	28	125	921	9	176	432	51	176	1,732	26	13	9	203	28
	6		6	2	11	49	300	9	39	179	27	90	927	13	6	85	19	
	86		38	22	39	39	33	100	29	41	53	51	54		67	42	68	
						1	3	19				47	61			6	4	

TABLE VIII.—Number of locomotives inspected, found

Table with 7 columns: Parts defective, inoperative or missing, or in violation of rules; New York Central—Lines East; New York Central—Lines West; New York, Chicago & St. Louis; New York, New Haven & Hartford; New York, Ontario & Western; Norfolk & Portsmouth Belt. Rows include items like Air compressors, Arch tubes, Axles, Blow-off cocks, etc.

defective, and ordered from service, etc.—Continued

Table with 13 columns: Norfolk & Western; Norfolk Southern; Northern Pacific Terminal; Northern Pacific; Northwestern Pacific; Ogden Union Ry. & Depot; Oklahoma City-Ada-Atoka; Oklahoma, New Mexico & Pacific; Oregon Short Line; Oregon, Washington Ry. & Nav.; Fatapsco & Back River; Pennsylvania; Peoria & Pekin Union; Pere Marquette; Philadelphia, Bethlehem & N. Eng.; Pittsburgh & Lake Erie; Pittsburgh & Shawmut; Pittsburgh & West Virginia. Rows include items like Air compressors, Arch tubes, Axles, Blow-off cocks, etc.

TABLE VIII.—Number of locomotives inspected, found

Table with 6 columns for locomotive regions (South Buffalo, Southern, Southern Pacific Lines East, Southern Pacific Lines West, Southern Pacific of Mexico, Spokane International) and rows for various parts defective, inoperative or missing, or in violation of rules. Includes summary rows for 'Number of defects', 'Locomotives reported', etc.

defective, and ordered from service, etc.—Continued

Table with 14 columns for locomotive regions (Spokane, Portland & Seattle; Steelton & Highspire; Sumpter Valley; Tennessee Central; Tennessee Coal & Iron; Terminal R. R. Assn. of St. Louis; Texas & Pacific; Texas Mexican; Texas Midland; Texas-Pacific Mo. Pac. Terminal of New Orleans; The Kansas City, Mexico & Orient; Tionesta Valley; Toledo, Peoria & Western; Toledo Terminal; Tonapah & Goldfield; Toronto, Hamilton & Buffalo; Tremont & Gulf; Trinity & Brazos Valley) and rows for various parts defective, inoperative or missing, or in violation of rules. Includes summary rows for 'Number of defects', 'Locomotives reported', etc.

