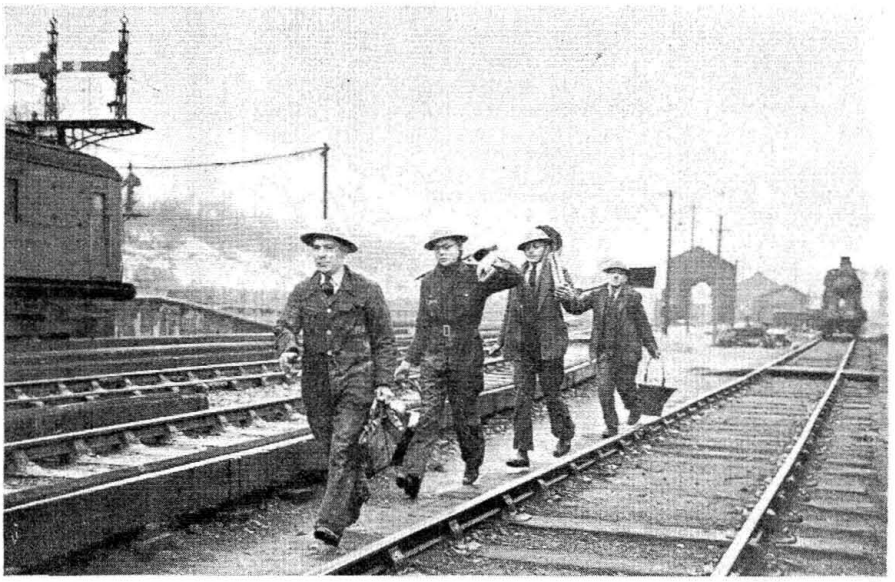

An emergency repair gang starting down the line to reported "incident" caused by an enemy bomb

War On the British Railways

IN SPITE of the thousands of bombs that have fallen on British railway tracks during the last year, trains continue to operate with little interruption, even during air raids, and damage to the tracks is usually repaired within three or four hours, according to booklets issued by the British Railway and received in Washington by the Association of American Railroads. Rarely does damage to a line or station require more than 12 hours to repair sufficiently to have trains again operating.

In the foreword of one of these bulletins, Lt. Col. J. T. C. Moore-Brabazon, Minister of Transport, says: "Railways form the biggest part of our war machine of transportation. Two features, in connection with the railways, give special cause for pride and confidence. One is the astonishing powers of recovery possessed by the railways; the other is the cool courage of all grades of workers."

Commenting on the information contained in the bulletins, the A.A.R. says in a release, in part, as follows:

At the beginning of intensive air attacks on Britain, the British railroads restricted the speed of trains to 15 m.p.h. during air raid "alerts." When experience showed that this was unnecessary as a safety precaution, speeds were raised to 25 m.p.h. during daylight raids and 15 m.p.h. during night raids. Further experience has resulted in raising the speed limits to 50 m.p.h. during daylight and 30 m.p.h. during blackout "alerts."

How the railroads deal with air raids, however, is but one of the interesting aspects of war-time railroading in Britain described in the booklets. The necessity of complete blackouts of yards and terminals at night has concentrated the business of loading and unloading freight into the daylight hours. To get the utmost service out of their freight cars, this work goes on through all daylight hours with "no Sundays off."

Blacked-out terminals add greatly to the difficulty of switching operations, or "shunting," as the British call it, but much experimental work has been done to screen from air view the electric signal lights, the glare from locomotive fire boxes and the ground flares used in the yards by "fogmen." Systems of reduced lighting, that can be put in operation at a moment's notice by one master switch have been installed in many yards, as well as within the nearly 7,000 passenger stations in Britain.

Emergency wartime lighting, which does not show outside the passenger car windows, has been installed in 46,000 passenger vehicles, also. All trains run "dark" during air raid alerts, except that in dining cars the lights continue to burn dimly under the control of a trained employee at a master switch. Wayside signal lights continue to burn also, but they are hooded effectively so that they are practically invisible to enemy aircraft at the heights which they normally fly.

Wrecking trains, stocked with track materials, steel girders, timbers, signal wires and other supplies are held in readiness, with steam up. Special fire-and-bomb cars, developed by the British railroads to fight incendiary fires and deal with unexploded bombs, are spotted at strategic points also. Such cars carry portable fire pumps, which can be skidded from the cars and moved to the fire; shovels to bury incendiary bombs with sand and earth; snuffers to smothers incipient fires; and tongs for handling unexploded bombs.

To replace some of the more than 50,000 railroad men who have gone into the armed forces, the British railroads have employed more than 10,000 women and are seeking others. Since the new railway-women handle express or parcels traffic, among the other duties which they perform, the railroads are urging the public to cut down the size and weight of parcels within the limits which can be handled by women workers.

In spite of these and other difficulties of operation, not the least of which is the impossibility of planning major transportation movements in advance, the railroads continue to handle the traffic. Schedules may have to be broken up and trains re-routed at any time because of bomb damage, or to make way for "Q traffics," which is the name given by the British to

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War on the British Railways

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expedited special trains carrying commodities or persons of paramount importance at the government's order. More than 50,000 such special trains have been run since the beginning of the war. Special long-distance coal trains, over and above the normal daily movement, have numbered as many as 1,000 a month.

The heaviest concentrated movement of persons during the war thus far was in connection with the evacuation of Dunkirk, when 300,000 troops were handled from seven ports in the southeast of England, without previous notice or advance preparation, within a space of eight days. As many as 100 special trains were run in a day.

Among the examples given as typical of the powers of recovery of the railways is the case of a bomb explosion on a double track just above the subway for passengers at a busy station. Rails, timbers, girders and platforms were blasted, and signal cables were blown out. Two wrecking and supply trains were rushed to the blasted station, along with gangs of men. Both tracks were reopened, the signal lines were restored, and the station was again in service within less than eight hours.

Among the typical examples of courage under fire are stories of switching crews who moved train loads of blazing ammunition to points of safety, or unloaded high explosives from cars already on fire; of men who continued work on emergency signal wire repairs directly over an unexploded bomb, and then helped the bomb disposal squad to remove it to a near-by river; and of others driving bombed and machine-gunned trains, or working signal levers amid falling bombs, in interlocking towers already on fire.

Summing up in one of these bulletins, the Minister of Transport says: "Bombed and machine-gunned, slowed up by storms of almost unparalleled severity and slowed down by unavoidable lighting restrictions, the railways have performed feats of engineering and operational skill in order to insure that the nation's war effort is not held up."

Accident at Spring Switch

On March 13, at Kumis, Va., on the Virginian, eastbound freight train Extra 101, pulled by an electric locomotive, was derailed when making a facing point move on the main line over a passing track switch which was equipped with a spring switch mechanism. The following information was abstracted from a report of the Bureau of Safety.

A westbound train made a trailing movement out of the passing track through this switch to the main line about 11:30 p.m., about 1 hr. 27 min. prior to the accident.

Apparently, after the rear of the westbound train reached the main track, the switch points started to return to their normal position but when they reached a point midway between the closed and the open position they stopped and remained in the midway position until the derailment of the eastbound train occurred. There was no object found that might have fallen between the switch point and the stock rail. The sliding plates of the switch were well lubricated and free of grit. The oil buffer, which was provided to prevent the rapid return of the switch points to their normal position, contained a torn timing-valve screen. When the oil was strained, particles too large to pass through the port in the timing valve were found. Undoubtedly the torn screen permitted the particles to block the port so that part of the oil could not pass from one side of the piston to the other; this condition resulted in the failure of the buffer to function properly, which in turn affected the operation of the spring switch-points. Tests of the springs disclosed that they were capable of delivering the desired force.

A distant switch-signal, located 3,970 ft. west of the west siding-switch, is of the one-arm, two-position, upper-quadrant, semaphore type. The signal-relay circuit is controlled by a switch-circuit controller which is connected to the normally-closed switch point. When the switch points opened 3/16 in. or more, the relay circuit is opened and the signal displays caution. The night aspects, indications and names are as follows:

Green for Clear, and Yellow for Caution, and the indication applying to the yellow aspect is "Proceed under control and stop clear of the switch, and train must not proceed over the switch until it is ascertained that the switch is in safe condition for passage."

According to the evidence, Extra 101 East was moving at a speed of 28 m.p.h. when the engine became derailed at a point 11 ft. 6 in. east of the west siding-switch. Inspection of the track after the occurrence of the accident disclosed that each switch point was from 2 to 3 in. from its stock rail and that there were abrasions on the outside surface of each point and on the inside faces of the engine-truck wheels. These conditions indicate conclusively that the switch points were open sufficiently to permit the engine to move on the two stock rails to a point where the gage became wide enough to allow the wheels to drop between the rails.

There was considerable discrepancy in the statements of the four surviving members of the crew concerning the indication displayed by the distant switch-signal located about 4,000 ft. west of the switch. According to the statement of the engineman, he received a clear signal but according to the front brakeman, who was in the rear end of the rear unit of the engine, it was caution.

After the accident occurred, the distant switch-signal was tested thoroughly and it operated as intended. No condition was disclosed that would cause this signal to display proceed when the switch point was ¼ in. or more from the stock rail. From this and the statement of the front brakeman, it appears probable that the signal displayed caution for the train involved.

The switch involved was installed about three years prior to the time of the accident. During this period the only attention given it was the addition of oil to the supply in the buffer. If this buffer had been properly inspected at reasonable intervals, undoubtedly the torn screen and the foreign substance in the oil would have been discovered. If the buffer had been maintained in proper condition for service it is probable this accident would have been averted.

It is found that this accident was caused by the right switch-point of a turnout to the right being in position for entry to the siding and the left switch-point being in position for movement on the main track, as a result of the failure of the oil buffer of an automatic spring-switch.

It is recommended that the Virginian submit to the Commission rules for installation, inspection and maintenance of spring switches in use on its line of railroad.