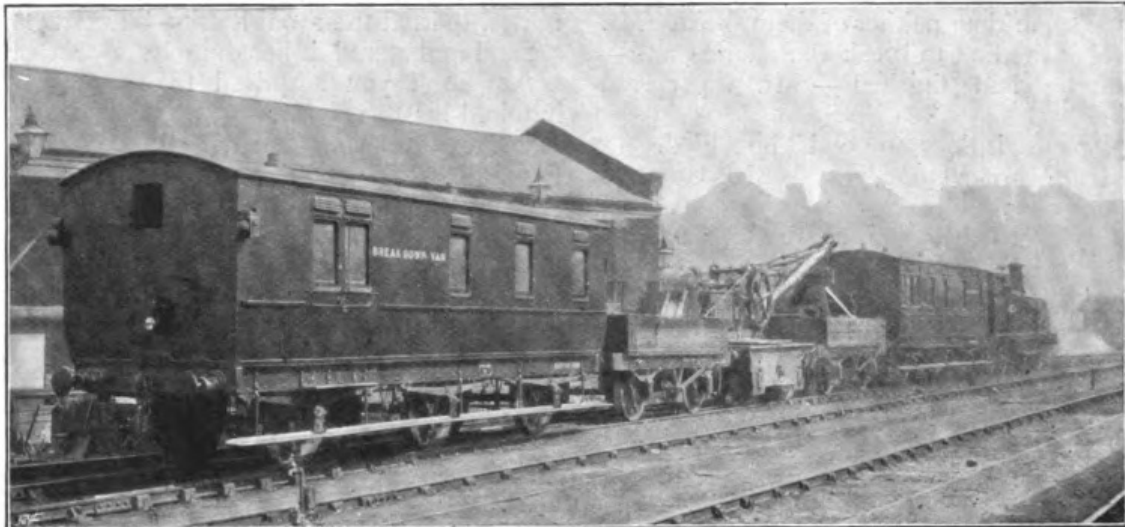


## The Breakdown Train.

BY E. S. VALENTINE.



From a]

THE BREAKDOWN TRAIN.

[Photograph.



UPON the great highways of transit in this kingdom, and indeed upon every important railway in the world, there runs from time to time a train which takes precedence of all other trains. Everything—even the Royal express—must give way to it, for without it, in the peculiar emergency by which it is called forth, all on the line would be chaos and confusion. It is called the Breakdown Train (or Wrecking Train), and it runs between its own head-quarters and the scene of an accident on the line. It is a combination of travelling workshop, store, and magazine of tools, as well as a travelling ambulance capable of affording first aid to the injured.

In this era of universal railway travelling a breakdown on a busy railway is little short of a public calamity, even though unaccompanied by serious loss of life and property. To the breakdown train belongs the function of repairing the calamity; it speeds to the rescue; every engine, every carriage, every truck, every item of rolling-stock is shunted to let it pass, because each minute that it is delayed adds to the twin streams of pent-up traffic which is disorganizing the railway.

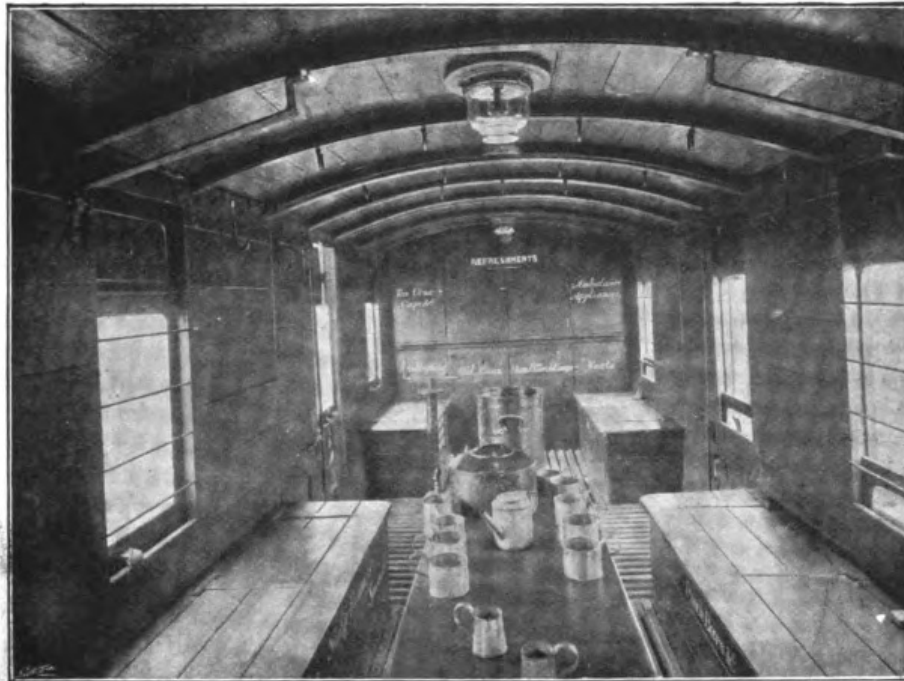
In order to gain a glimpse of the working of the breakdown train let us suppose that one dark, stormy night there flashes into a

large passenger station such a message as this:—

“Serious accident at Stark Junction. Locomotive 45 and five carriages down the embankment. Numerous passengers.”

Two copies of this telegram are instantly sent, one to the locomotive superintendent or his foreman in charge of the “locomotive shed,” and the other to the “traffic inspector” of the district. To the locomotive department of every large station are attached a breakdown train and gang, which are maintained in a constant state of efficiency. Provision is made for action at the briefest notice, day or night. A list of the names and addresses of the foreman in charge of the breakdown vans and of the skilled men, twelve in all, who constitute the breakdown staff, hangs up, framed and glazed, on the wall of the office. If a larger force is thought necessary it is made up from the ordinary staff connected with the locomotive department.

In a few minutes the men are summoned from their beds, and are seen hurrying towards the van, dressing as they run. The breakdown train is already prepared for the journey. Sometimes it consists of seven vehicles, but never under five, the fewer the better, so long as it is replete with equipments. In the former case the train is made up of two tool-vans, one riding-van, one



From a]

THE RIDING-VAN.

[Photograph.

laden with wood "packing," the breakdown crane, and two "runners" or waggons which are employed to protect each extremity of the crane, one supporting the "jib," while the other is burdened with the "balance-blocks."

And now to the rescue! We are already at full speed down the line, and the riding-van, wherein the wreckmen are congregated sipping coffee, presents an animated scene. In a corner sits a young surgeon drinking coffee with the rest, and discussing with the foreman the probable cause of the accident, whose character can as yet only be approximated from the brief despatch in the foreman's hands. In the old days the breakdown gang had no riding-van; they had to ride on the trucks or on the engine or hang on how and where they could. The present van is capable of holding forty men. One end is fitted with cupboards, which when

opened disclose flags, fog-signals, signal and roof lamps used for lighting and protecting the train, as well as train signal-lamps, ready trimmed for lighting, and four train-lamps. A stove occupies the centre of the van, to which an oven is attached, so that, if necessary, the men may cook their food. "Box-seats" are constructed around the sides of the riding-van, which serve as receptacles for various tools, such as wood "scotches," small "packing" shovels, hammers, bars of many kinds, and a large variety



From a]

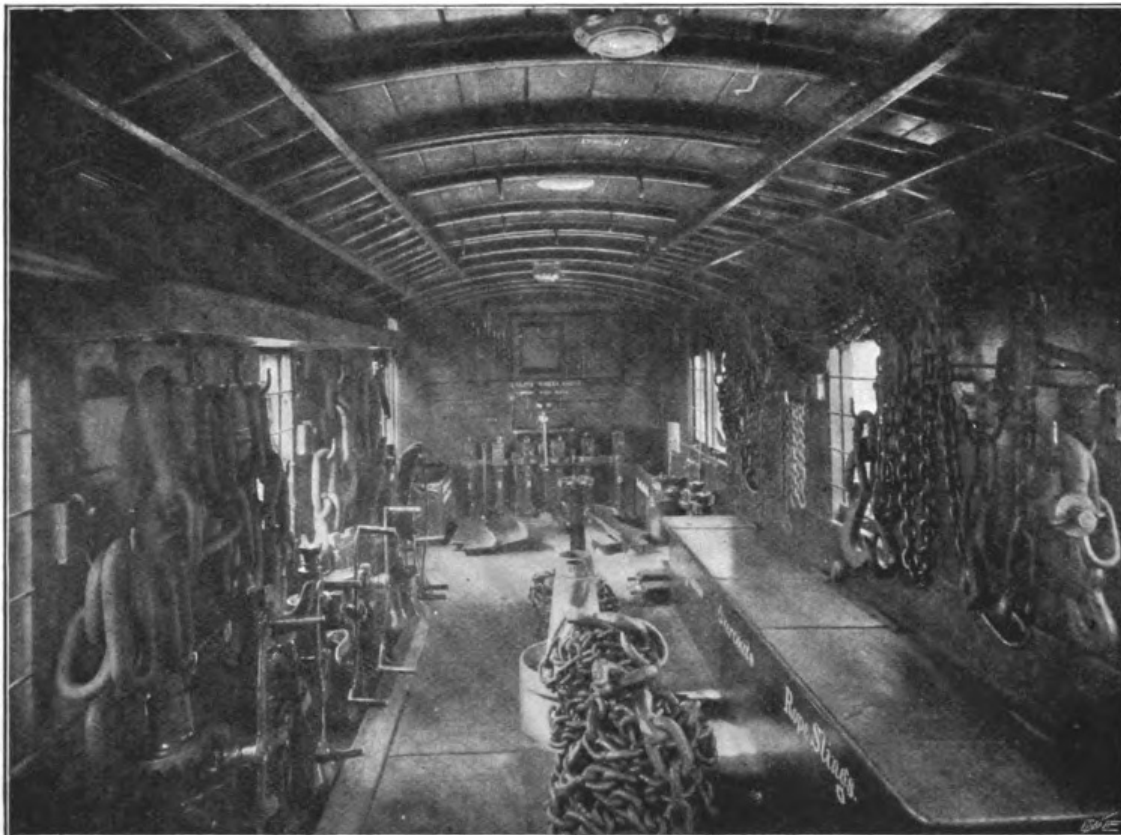
THE RIDING-VAN—AMBULANCE APPLIANCES.

[Photograph.

of what our mentor describes as "sets." This "set" plays a very important part in the labour of clearing the line or rescuing imprisoned victims of a railway disaster. It is used for cutting shackles or bolts, and is a piece of sharpened steel resembling the head of an axe without the handle, from one to three pounds in weight. A piece of hazel, commonly called a "set-rod," is wrapped round it, and the two ends form the handle. The set is held on anything which it is required to cut, and with the blows of a heavy hammer in the hands of those accustomed to such work it will quickly sever any bolt

and provisions, bread, butter, tea, coffee, sugar, and last, but not least, tobacco. This hasty inventory omits many articles of importance, but we must move rapidly on to the next van, merely noting the curious fact that the greater number of the tools which have handles are painted a bright vermilion, so as to be easily distinguishable in the dark or in the confusion which attends a wreck on the line.

By the light of a powerful lantern we examine the tool-van, passing through, in order to do so, a small compartment at the end of the riding-van, which forms a great contrast



From a]

INSIDE THE TOOL-VAN.

[Photograph.

or shackle. Shovels, hammers, chisels, bars, and other implements are also ready to hand in this van. One cupboard contains the hand-lamps needed by the official staff, each lamp having the name or the initials painted thereon. Still another cupboard is labelled "Ambulance." The foreman opens the doors and reveals two tourniquets, half-a-dozen compressor bandages, scissors, forceps, adhesive plaster, lint for dressing, splints for broken limbs, antiseptic fluids, sal volatile, needles, sponges, basins, while an ambulance-stretcher is folded away in one of the lockers.

Another locker contains the necessary food

to the body of the vehicle. It is reserved for the directors or officials of the road who may wish to proceed to the scene of the breakdown, but at present it is devoid of occupants, owing to the lateness, or rather earliness, of the hour. The breakdown train cannot stop even for a director, but officials have often been known to leap aboard at the last moment on the occasion of some important mishap.

The tool-van glitters and bristles like an armoury. The floor is divided into little streets and squares, as may be seen by the accompanying illustration, formed by rows of

jacks, ramps, and pyramids of chains, each placed with due regard to neatness and to prevent confusion and intermingling. The upper portion of the sides of the van is looped around with strong cables of rope or chain for haulage purposes, and is also arranged and fastened with occasional lashings to be easily loosened ready for use.

A couple of sets of strong ladders are lashed to the roof. These are fitted with socket ends, and when, in event of a collision, waggons are piled up to a height of twenty or thirty feet, they are of the utmost service in scaling the wreck. The lower sides of the van are devoted to an array of single and double hooks, and huge iron loops for the jacks. The remaining space in the van is filled up by bars, levers, and other appliances, all arranged in an orderly fashion. Order seems to be the guiding motto in the breakdown train. There are in this van no lockers, for the reason, as your guide informs you, miscellaneous articles get out of ken when hurriedly thrown in, and are afterwards urgently needed. At one end of the van there is an 8in. vice, secured to a bench, specially constructed, so as to be portable if required; and a tool-rack, containing files, chisels, and hammers, every article being within easy reach. Before taking leave of this section of the breakdown train let us not fail to notice the hue of the paint on the inside of the van. It is a clear white, the object being to throw every article into greater relief, for every jack, every lever or wrench, is painted of a ruddy vermilion. The object is, of course, to indicate its locality when in a half-buried state. Otherwise after the confusion and strenuous toil of a breakdown, especially at night, a number of the tools would be lost or mislaid.

The next vehicle carries the 15-ton steam crane with which, at some point or other, most railways in this country are now equipped, although the hand-crane is more generally employed. A properly-designed breakdown crane is the most suitable, and probably the most powerful, appliance known for clearing away obstacles with dispatch. The crane may not be of more than six or eight tons' lifting capacity, but the class of lifting usually dealt with does not exceed this weight, 90 per cent. of the work on English railways being under five tons. The hand-cranes are simply constructed with single and double motions, jibs capable of elevation to a moderate extent, and with a radius of about 20ft.

The many purposes to which they can be

so readily applied render them, within their own limits, more popular than the larger cranes. The balance-box of the crane is movable, and when in use is heavily weighted with a number of blocks of cast-iron. In addition to this, when a heavy weight is being raised, the crane is secured to the permanent way by means of four clips, which are attached to each corner of the crane and clip the head of the rails. The crane itself is commonly worked by five men. The frame of the crane is iron, and the waggon which supports it is also of iron, weighing altogether from fifteen to thirty tons. Next to the crane is another runner on which rests the jib of the crane. The latest form of the crane is a combination with the locomotive, such as is in use by the North London Railway.

Having thus described, in a somewhat imperfect fashion, the breakdown train and its principal contents, let us hasten on to the scene of the disaster. The waving of red lanterns and the explosion of fog-signals apprise us that we are approaching the fatal spot. Scarcely has the riding-van sufficiently diminished its speed than, lanterns and torches in hand, the breakdown gang is swarming along the metals, the foreman at their head. This personage, who is also an official of the line, is a heavy-set, intelligent man of fifty. In railway circles he is credited with being a specialist in breakdowns, and to his ingenuity and skill are due many of the technical improvements which have in recent years marked this important branch of the service. Whether the accident be a collision, a derailment, or due to damaged machinery, however dense the wreckage or appalling the results, he is said never to lose his head or fail to accurately gauge the disaster, and instantly sets to work to apply a remedy. "Nothing," he remarks, "is so requisite as a cool head." His first idea is to clear one road; he attacks with discretion at one point to ease another.

We will pass over the pitiful human details of the accident which has occurred. It will be enough to say that in the present instance a locomotive and five carriages have plunged headlong down a steep bank, leaving three other carriages derailed close to the main line. The blackness of the night, the howling of the tempest mingling with the groans of the wounded and dying, the shouts of the workmen, the dark forms rushing hither and thither, women wringing their hands in an agony of supplication for help to those who are unable to render any—this is but a

rough picture familiar to the average breakdown gang. With their advent come lights; flaming, spluttering torches are set up on the summit of the *débris*. A number of the wreckmen immediately attack the work of extricating the survivors from the wreck, while others bend their trained energies to the clearing of the line. The foreman makes room to get his crane, jacks, and ramps at work. In event of a collision he makes huge bonfires of the matchwood; some of

killing or maiming some of the breakdown staff, whose work, as it is, is often of a sufficiently dangerous character. As an instance of this, some years ago, while one goods train was running over a junction, the driver of another goods train, approaching the same junction from the other line, ran past the distant and home signals set to protect the first train, cutting right through the latter. Waggons from both trains—overturned, upturned, on their sides, mounted upon one



From a] THE BREAKDOWN GANG AT WORK AFTER THE SLOUGH ACCIDENT.

[Photograph.

the crippled waggons he replaces on the line, bandaging them together to make them fit for travel. Such vehicles as can no longer travel he pitches to one side to deal with them at a more convenient time. If the waggon has become partially embedded he raises it by means of the jack; and if not too far distant from the rails replaces it by means of the ramp. In such manner does the master railway wreckman fight and bore his way through the outer mass of ruin until he reaches the heart of the difficulty, sparing neither himself nor his men until the line is clear.

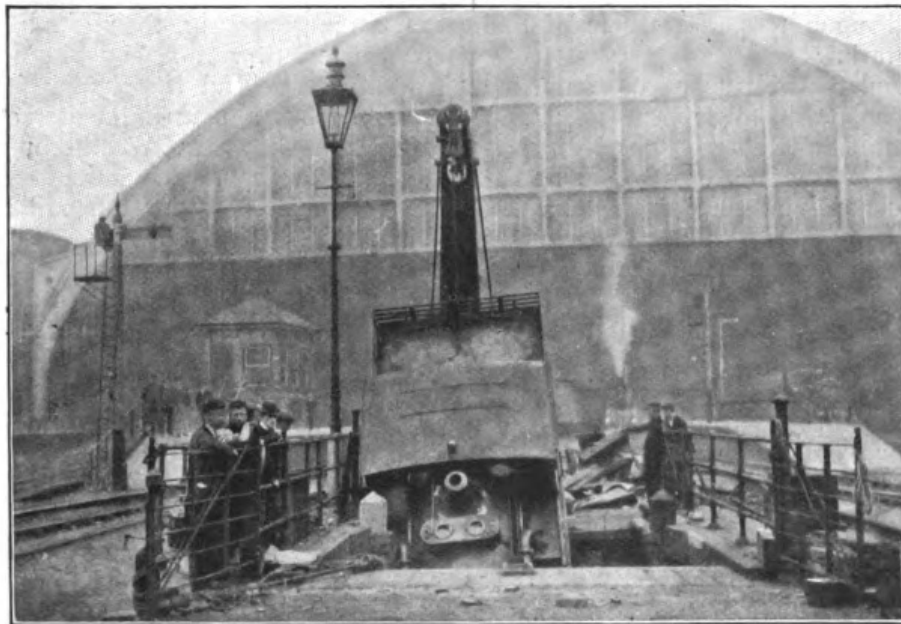
The breakdown gang is under his sole charge, and he will brook interference from no one, and rightly so. With more than one person giving orders confusion becomes worse confounded, and grave risk is run of adding to the effects of the disaster by

another—lay in a great heap, blocking all lines. As a preliminary step the foreman decided to pull the heap apart. While he was getting the engine in position and having his favourite hauling-chain affixed thereto he directed two of his gang to go in amongst the waggons and undo any couplings they could find. The men crawled in out of sight; but no sooner was the chain fixed than someone (not the foreman, you may be sure) told the driver to go ahead. The men inside heard the order given, and shouted out in terror, "Let us get out of this first." The order to the driver was, of course, promptly countermanded, or the two men would have stood little chance among the plunging waggons and the crashing timber when once the engine began to pull on the hauling-chain.

It is wonderful to observe the special

faculties developed by the expert. At a single glance the expert in railway breakdowns recognises precisely what tools or appliances will be required in the case of each defaulting vehicle. There were said to have been experts in the old coaching days, before the advent of railways, whom a "spill on the road" made masters of the situation. A certain coachman, in the early days of steam locomotion, is said to have thus drawn the line between coach and railway accidents. "It is this way, sir," said he. "If a coach goes over and spills you in the road, why—*there you are!* But if you goes and gets blown up by an engine—*where are you?*" And occasionally there are accidents so disastrous in their results as almost to baffle the eye even of the expert, and make it

immediately in front of the wheel of the waggon which it is intended to replace on the rails. Either two or four of these ramps can be used at the same time for a waggon, according as may best suit its position on the road. As soon as the weight of the carriage gets upon the lower end of the ramp it presses the teeth into the sleeper and so compels it to keep its position. If the waggon has overturned the "snatch-block" is the most useful appliance. A third implement is the "clip," which fits on the rail. The rail, indeed, is the great fulcrum and base for the operations. The waggons and engine at the base of the embankment are pulled back to the line by means of two snatch-blocks, one secured to the waggon and the other fastened to the draw-bar of the



[From a] RAISING AN ENGINE WHICH HAD PLUNGED THROUGH A LIFT-WAY. [Photograph.]

puzzling to know how to begin to extricate order out of chaos.

In the present instance, however, after the work of rescuing life and limb from the carriages which have been precipitated down the embankment, putting out the engine fires, and removing the glass and splinters, for every window-pane has been broken, the duties of the wreckmen are immediately concerned in replacing the three derailed vehicles on the line. A screw-jack is employed to lift up the end of each waggon separately, after which the principal implement all the ramp. The ramp is constructed to fit the rail at one end and the sleeper at the other. It has two spikes or claws at the end which is affixed to the sleeper, which are

crane, which is firmly secured to the rails. The rope passing through both blocks draws the waggon within reach of the jib of the crane, which takes the waggon up bodily and places it on the rails.

In all this work, varied and intricate, laborious and often exciting, each master wreckman has his favourite appliances, jacks, hauling-chains, ropes, etc., whose special virtues he extols, often at the expense of the apparatus in use on rival lines. But however it is done, the line, in nearly all wrecking cases, is cleared in what seems to an outsider an incredibly short space of time. The traffic is resumed; day breaks upon a peaceful landscape. We revisit the scene of last night's disaster, but the rays of

the morning sun reveal no indication of anything unusual having occurred. Of the wreck, ruin, and confusion not a trace now is to be seen, so thoroughly have the wreckmen accomplished their task. The huge engines pitched over like child's toys, their plates rent and torn asunder, revealing the very bowels of each iron monster; carriages reduced to flimsy matchwood, weakly strung upon a quivering metal harness; twisted ironwork and bent axles—of all this and more, if there has been a collision of the "telescope" variety, there remains now only the recollection.

The valiant breakdown gang has gone home to bed, after a hard night's work. In winter each member of the gang dons a top-coat provided by the company, and in addition to "what time they may make" a bonus of two shillings is given to each on every occasion he is called upon to perform "main line breakdown work."

Some singular accidents occur from time to time, but railway history repeats itself, and each extraordinary mishap serves as a precedent, and furnishes its own moral to the professional wreckman. For example, a few years ago at Kelthorpe sidings two engines collided, and became so involved and wedged together that it required the strength of two others of even greater strength and size to pull them apart. The Farlingham Tunnel was once blocked up from rail to roof by a collision. While trying to find a path through the wreckage the foreman and several of the breakdown gang were nearly choked with pepper. It appeared that this condiment had been spilt from the broken

casks which held it, until it lay ankle deep on top of the *débris*, like snow crowning an Alpine summit.

A curious accident, and one not easy to manage, happened two or three years ago right before the eyes, so to speak, of the breakdown gang. A large locomotive at St. Pancras suddenly took it into its head to plunge down a lift-way into an adjacent subterranean workshop. It was, in the strictest sense, a clean dive, and there the locomotive lay, literally wriggling on its buffer, until the breakdown gang, with the aid of their steam cranes, hauled it out hind-foremost.

From America the most astonishing and appalling accidents are constantly reported. In that country of magnificent distances the wrecking train plays an even more important part than it does with us. But the work is the same; and in their appliances and equipments they differ but little from us. And it is doubtful if they have on any of their railways a man of greater ability and experience than Mr. Weatherburn, of the Midland Railway, to mention only one of the veterans of whom our railway system may well be proud.

In conclusion it may be remarked that the crew of the wrecking train bear a close analogy to our firemen on land and the lifeboatmen of our coasts.

It is, in brief, the Railway Salvagè Corps; upon its courage, industry, celerity, and judgment depend not only human life and property, but the free current of commerce and business communication in which millions of money may be, and often are, closely involved.



MR. ROBERT WEATHERBURN, HEAD OF THE BREAKDOWN DEPARTMENT OF THE MIDLAND RAILWAY.  
*From a Photo. by Arthur Weston.*