MARSHALLING YARD

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Modern railway is a huge and complex system. Railway traffic operation must ensure a safe and efficient handling of trains at all stages including stations, freight terminals, marshalling yards, signal and control centres, etc.

The operation business also includes management of marshalling (classification) yard work. In classification yards loaded freight cars from all the country are sorted according to their final destination, and then joined to others to form a new train. Modern yards use computers and Automatic Car Identification system (ACI) to speed the process of car classification. Electronic scanners read colour-coded identification labels on incoming cars and relay the information to yard computers that assign the cars to the proper track. Scanners do it three times faster than any car dispatcher. When a freight car enters a yard, it is shunted on to a lead track; from there, it is sent through a series of switches to its classification track. Larger yards have the lead track situated on a small hill, or "hump," where the force of gravity can send the car through the proper switches; pneumatic or hydraulic retarders manage the car's speed safely as it is routed and staged onto the proper classification track. Yard work gets tricky when dealing with full cars, empty cars, heavy or light freight, or the occasional mismarked or unmarked rail car. It's the yardmaster's job to make sure that the staging of cars and building of outgoing trains goes properly; not surprisingly, modern yards use technological tools to get real-time information to the yardmaster. Axle-counting sensors are spaced around the yard; the network of sensors can track the movement and disposition of every car in the yard and calculate the remaining capacity on each track. When tied in with information from the yard's car-management database, this information can be used to compile reports of the actual consist of every train. Sensors can even be used to calculate the right hump speed for each car, cutting down on misroutes and enhancing safety.

A rail yard is managed by the yardmaster who has the responsibility in overseeing the direction of rail cars within the yard and assisting with the re-blocking of trains. Yardmasters coordinate the activities of workers engaged in railroad yard operations. These activities, which are also performed by conductors, include making up or breaking up trains and switching inbound or outbound traffic to a specific section of the line. Some cars are sent to unload their cargo on special tracks, while others are moved to different tracks to await assembly into new trains, based on their destinations. Yardmasters tell yard engineers or other personnel where to move the cars to fit the planned train configuration. Switches operated remotely by computers, divert trains or railcars to the proper track for coupling and uncoupling.

At the goods yards individual wagons are combined into trains at the commencement of the journey, resorted at intermediate yards where, if necessary, they are recombined into fresh trains and finally they are dispersed at the end of the journey. The first requisite, for a goods station in a large industrial centre is a group of sidings for the reception and dispatch of the freight trains. On these sidings all the incoming wagons are received, and thence they are taken, as required, to a section of the great goods shed where they will be unloaded. Later in the day wagons loaded with goods to be forwarded will be worked from the shed to the sidings. Thus the work performed at goods stations has two main phases - shed operation and yard operations. At the goods shed goods are transferred from road vehicles to rail wagons and vice versa. Here, therefore, the aim is to get rid as soon as possible of everything that comes into the shed, for it is meant to be a transit shed, not a warehouse. In order that large quantities of goods may pass without difficulty through the goods stations everything is done to make the flow of traffic continuous.

References

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A TECHNOLOGICALLY PROMISING SOLUTION TO THE PROBLEM OF MOBILITY IN A GLOBALIZED WORLD

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After the industrial revolution, life has become much more meaningful and faster. For the last hundred years people need a faster and more technically advanced vehicle, sometimes even safety is inferior to speed and ergonomic problems are taking to the back burner.

And the approximate one hundred years ago was proposed, but the concept was not realized: A vactrain (or vacuum tube train) is a proposed design for very-high-speed rail transportation. It is a maglev (magnetic levitation) line using partly evacuated tubes or tunnels. Reduced air resistance could permit vactrains to travel at very high speeds with relatively little power –up to 6,400–8,000 km/h (4,000–5,000 mph). This is 5–6 times the speed of sound in Earth's atmosphere at sea level. Vactrains might use gravity to assist their acceleration. If these trains achieve the predicted speeds, they could surpass aircraft as the world's fastest mode of