even though all the parts are duplicate in every respect, no two of the locomotives will behave alike in service, but that each individual machine will have its own peculiar virtues and vices. For instance, one locomotive may jig and ride badly; perhaps the fault is more apparent at certain speeds than at others, and again it may vary with the position of the reverse lever and according to whether the locomotive is working hard or light. There are several things which might

into service. What too often happens is that the operating department officials will run the locomotive until there is a failure and then endeavor to throw the whole blame for the failure on the shops, whereas they are really as much to blame as the shops for not reporting the defect in good time.

in good time.

There are some kinds of defects which often manifest themselves on a locomotive from the shops, which will disappear after a few days or a few weeks in ser-

centage of ordinary running failures, but there is a class of failure which cannot be guarded against by any such regulations. I mean failures due to faulty design and poor material. To deal with the failures of this kind is, obviously, the business of the engineering department, and its first and greatest effort should be to locate the prime cause of the failure. Very often, the actual part which fails is not the part which is at fault, and if we go ahead blindly and strengthen this

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cause this trouble, and unless full particulars are given the real cause may be overlooked; but if the master mechanic will take particular care to describe the defect with all the symptoms, he will give the shop superintendent a chance to determine the seat of the trouble.

On taking over a locomotive from the shop after repairs, the operating department should keep a very sharp lookout for any defect which may be actually present, or beginning to develop, and these defects should be completely reported to the shop superintendent within 30 days of the date the locomotive goes

vice, and the operating department often makes the mistake of neglecting to report these defects, as they feel confident that the locomotive will come round to its work after a week or two in service. Very often their judgment proves correct, but the best policy in cases of this kind is to report the defect immediately, keep a strict watch on it and if no improvement is noticeable within a very short time the defect must be rectified to avoid any chance of locomotive failure.

The standard maintenance regulations in force on most roads, if faithfully carried out, will prevent a very large perpart, the evil will only break out in another place, very likely with worse results, so that the maxim of the engineering department should be first to find the absolute root of the trouble and then rectify it.

To determine the mileage that should be obtained from the different classes of locomotives, study and investigation would be required, and, in the writer's opinion, a minimum mileage requirement should be established for all sub-divisions for the various classes of locomotives according to service, after receiving a no. 1 or no. 2 repair—and if this is not done,