

"I am using P.R.S. engine oil (I may say my friend is a stationery engineer) because it is giving me excellent results. Now the Superintendent comes along and says that a traveller came to him the other day with a certain oil 10 cents cheaper than that being used, and he wants to find out whether it is worth trying." My friend says he can find out whether the bearings run cool, but it is pretty hard to say whether the new oil is as good or better than the old oil. He then asks me, "If anybody asks you about an oil, how do you tackle the problem? You may go about it in one way and I in another, and in all likelihood we all reach the same result. However, if we know how you go about it and I go about it, we will be that much further ahead."

An ideal way, I presume, of testing the relative values of oils or lubricants of any nature, would be the following:

First of all we would take a bearing and see whether it was in first class mechanical condition. Then we would have the shafting equipped with some means of measuring the power that was being transmitted. Having our bearing ready we use as a lubricant, one of the oils to be tested. We would have to let the bearing run for some considerable time before we would get the necessary information from our experiment, because, as you all know, certain oils and lubricants will, after they have been in service some time, begin to gum, but this may not develop before three or four days. Then we have to take into consideration how the oil affects the bearing. Some oils which may be excellent at the beginning, may corrode at the end of two or three weeks. Now, I want to point out that it is a hard matter to make a proper test, and tests of bearings equipped with dynamometers and involving these examinations are consequently only made at intervals by large consumers, and often they are forced to resort to other methods.

Now, I shall try and tell you, in a short way, how the large consumers obtain these results. I may say in the beginning that the largest consumers of oils in America, or in fact any other country, are the railroads. We have in America some railroads that employ a staff of chemists who test the material being used by that firm. You all know that the New York Central, B & O., and Chicago Northwestern all employ chemists in order to check the material they are buying and using. These chemists hand over their results of tests to the heads of the railroads for their guidance.

Now I am going to take up several of the methods used in testing oils, and I may say I am only following the lead of large laboratories. I shall take these up under a number of different heads, and as we go along I am going to talk to you in an informal way, and if there are any points which I may not make clear, I hope you will not scruple to interrupt me and have the matter made clear.