the quality shown during expansion, the two methods have always given substantially the same results. The difference in in fact depending simply upon the accuracy with which either the computation or the drawing was made. In the test for Hirn's analysis, the total heat discharged from the engine is always measured or computed so that the quality of the exhanst steam can be determined. The same data could be used in conjunction with the graphical method described, in which case the heat interchanges could be very readily and quickly computed, using the diagrams to obtain the quality at any given point thus, if from an ordinary test the weight of steam at any point is given and the quality is shown by the graphical method which has been explained, the total heat is computed from a simple formula which is no doubt familiar to all.

Thus, let x = the quality as determined from the diagram, ρ the internal latent heat, q the sensible heat, for the given pressures. The latter being obtained from a steam table. Then the total heat in one pound of steam will be $x\rho + q$, which can be computed from the data at hand. If r is the total latent heat, the total heat available after condensation would be xr + q.

While the graphical method will not replace the more tedious and exact analytical one for all purposes, yet it is believed that it will give all the practical results which can be obtained from the analytical method with much less work and in general, in a manner which is more readily understood by the student in technical schools and I think will on the whole prove of some value to practical engineers. This, I believe, has not been the case with the analytical method of determining the heat losses.

As another illustration of the method of using saturation curves, reference is made to Figs. 2 and 3 in which case we have the same engine working with the same brake load and practically the same I. H. P. The load was very light; and in the one case, the engine was worked with very little compression and in the other, (see Fig 3), with a great deal of compression. The discussion here is merely to show the method of obtaining the results by a graphical process and no reference is made to the relative economy in the two trials for the reason that it will probably form the subject of a paper before the society by one of my colleagues in Sibley College. In these figures "A" Fig 2 is an exact copy of the diagram as obtained from the indicator. In Fig. 2, diagram "B," the line AB represents the expansion

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