Repairs and maintenance of H.T. line (5 % of cost per year)	2,285	Repairs and maintenance of H.T. lines (5 % per year)	2,980
Repairs and maintenance of sub-stations (4 % of cost per year)	2, 064	Repairs, maintenance and inspection of sub-stations (6 %)	1,428
Repairs and maintenance of 3rd rail (1 % of cost per year)	1,822	Repairs and maintenance of trolley (4 % per year)	3,652
Repairs and maintenance of car equipments (12 % of cost per year)	7,512	Repairs and maintenance of car equipments 10 %)	10,177
Total yearly operating expenses	$55,404	Total yearly operating expenses	$51,256

NOTES ON THE ABOVE COMPARISON.

First cost.—In the first cost of the two sytems above compared, no allowance is made for the fact that the A.C. system requires less energy at the power house, and, therefore, will economize to a considerable extent in both engines and boilers. On account of the greater apparent K.W. for the A.C. system, generators and transformers will be larger in capacity, but the engines and boilers need not be so great in capacity. So far as transformers are concerned, the A.C. system has the advantage because it allows the use of considerably larger units than the D.C. where three-phase transmission is necessary instead of single phase as is the case in A.C. system. The A.C. switch-boards also have the advantage in that two switches per panel are required instead of three.

To render a given service over high tension line, more copper is required for a single phase line than for a three-phase line, and this makes the copper for the A.C. system somewhat more expensive than for the D.C. system. The largest difference, however, in the high tension line items comes from the fact that the poles for the high tension line are spaced sufficiently close to allow the trolley brackets to be supported from the same poles. In the D.C. system, the spacing need be only sufficient for the requirements of the high tension line alone.

So far as sub-station transformers are concerned, the A.C. system has the advantage of single-phase over three-phase in that larger units are used. By far the largest item of saving in sub-station equipment between the two systems is, of course, in the omission of rotary converters in the A.C. system.

When we come to the consideration of the low tension distributing system we find at once the largest item of difference between