ses throughout the system due to frictional resistance or static head to a minimum.

Extremely high boiling fractions cannot be distilled commercially in a dry system because the absolute pressure required to accomplish the distillation is not commercially practical. Dry distillation is therefore limited in its application to those products which may be distilled at commercially obtainable pressures, with operating temperatures well below the cracking range for the particular product in question.

In any vacuum distillation process the number of overhead or external condensers required is determined by the number of overhead cuts or fractions desired. Dry distillation systems, operating at extremely low absolute pressures, are usually suitable for recovering only one or two fractions; for in order to recover a greater number of fractions, the equipment required, even though designed with extreme care, would impose a sufficient pressure drop to prevent securing the necessary absolute pressure at the point of injection to accomplish vaporization.

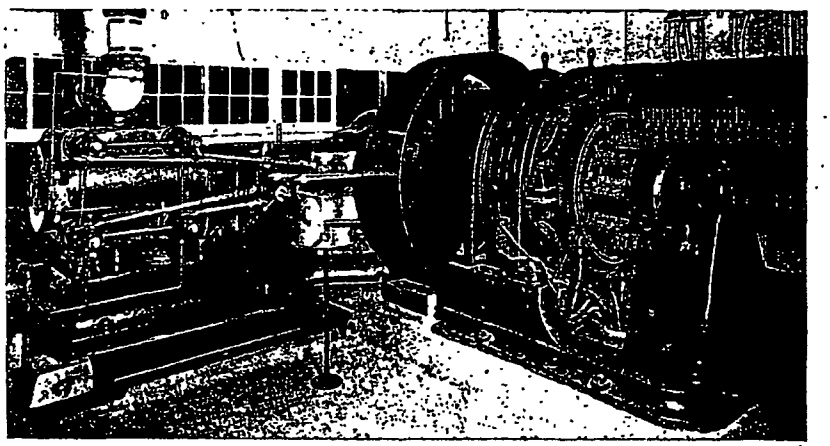
The flow diagram illustrates a typical dry distillation system. The charging stock is received hot from a previous processing operation and enters the pipe still of the vacuum unit, where it is heated.

Pancake coils are employed in the tower to keep down the number of trays required in order to keep the pressure loss at a minimum. All of the vapors enter a single overhead condenser in which they are almost completely condensed and partially cooled. The distillate removed from this condenser is further cooled in a separate water-cooled exchanger, and a portion of the cold reflux is pumped back to the top of the tower for control purposes. The non-condensable gases, plus a small amount of saturated hydrocarbon vapors, pass through a small water-cooled gas cooler and subsequently to the suction of the steam jet ejector. The steam jet ejector is of the three-stage type, employing barometric inter-condensers between stages.

Experience with dry distillation systems indicates that it is not commercial to attempt to secure absolute pressures at the point of vaporization appreciably below 8 to 10 mm. Within certain limits, however, which depend to some extent on the temperature of the water supply and pressure of the steam available, the lower the absolute pressure at which the system is operated, the better will be the overall economy of the unit.

There are fewer dry systems in actual use in this country than wet systems, although the former are far more economical in most instances where they are applicable.

## *Just as good in* KANSAS CITY *as it was in* LOUISVILLE



THIS ELLIOTT-RIDGWAY engine-generator unit has traveled about the country a little bit for the National Candy Company. The unit was originally installed in 1922 in the F. A. Menne factory of the National Candy Company at Louisville, Kentucky. After seven years of continuous operation, it stood idle for a while due to the discontinuance of the Menne factory. The management, however, remembering the good performance of the unit, moved it early in 1931 to the Kansas City, Missouri factory of the National Candy Company, where it is again demonstrating its reliability and performance capabilities. The photograph shows the unit as installed at Kansas City. It is a four-valve engine direct-connected to a 125-kw., 3-wire generator.