horse-power developed by the engine multiplied by the number of hours it has been working. Similarly, with electric power the amount of energy supplied is measured in kilowatt-hours, or the number of kilowatts being supplied multiplied by the number of hours' duration of the supply. The kilowatt-hour is commonly known as the Board of Trade unit, and is spoken of merely as the unit of electricity.

The Southland Electric-power Board rates for electric energy, per unit per month, are as follows: For the first 21 units, 7d.; for the second 21 units, 4d.; for the following 42 units, 2½d.; for all over 84 units, 1½d.

It will be seen from this sliding scale of charges that the more electric energy consumed the lower will be the average price per unit. Take, for example, a consumer using 100 units per month: his bill will come to £1 10s., or an average of 3·6d. per unit. If he consumes 200 units per month his bill will be £2 2s. 6d., or an average of 2·55d. per unit; and if he consumes 300 units per month his bill will come to £2 15s., or an average of 2·2d. per unit. It is therefore apparent that the greater the use made of electricity the lower will be the cost per unit or per horse-power-hour.

In tests on the driving of separators by electricity and steam which were carried out recently the following methods were employed. The results are valuable, and they go to prove that dairy factories in Southland cannot afford to use steam where electricity is available at the above rates.

In the steam test half a ton of coal was carefully weighed out and reserved for use during the separating-period. The fire was worked into good condition, and 100 lb. of steam raised on the boiler. This head of steam was maintained approximately constant both before and during the separating-period. As soon as the separators were started the boiler was fired from the half-ton of coal specially reserved. At the end of the separating it was calculated that nearly a quarter of a ton of coal remained. The cost of the coal (Kaitangata) delivered into the bunker is £1 11s. per ton, and the quantity of whey separated was 3,000 gallons. Thus the coal-cost of separating 1,000 gallons of whey by steam-power works out at slightly over 2s. 7d., or 3·1d. per 100 gallons. It must be noted that the fire and boiler were left at the end of the test in the same condition as at the beginning—that is, with a full head of steam. The quantity of coal burnt in raising steam has not been added in; if it were, the cost of separating by steam-power would be still higher.

In the electric test the A.V. 6 Alfa-Laval separator was driven by an electric motor by means of Vowell's constant-tension drive. A house-service type of kilowatt-hour meter was installed to measure the quantity of electric energy consumed. The separator was run up to speed for a consumption of 0·88 unit. The speeding-up occupied 28½ minutes, the constant-tension apparatus being set for a slow acceleration.

Separating was commenced and continued for one hour, during which time approximately 600 gallons of whey were separated for a consumption of 2·59 units, or a total consumption from the commencement of speeding-up of 3·47 units. Had separating been continued for a longer period the proportion of the energy consumed in speeding-up