be even greater, owing to the gradually reducing price per unit charged for electricity. Other economies would be effected, such as reduced maintenance of boiler and engine, reduced renewals of belts, reduced consumption of oil, saving of labour in boiler and engine attendance, &c. The very considerable economy effected by the use of electricity is due in no small measure to the efficiency of the constant-tension drive, which has the unique function of maintaining a perfectly uniform turning effort on the pulley of the separator. Even the slight variations which would be produced by sticky or greasy patches on the belt are compensated for.

This brings out an important point in the electrification of dairy factories. Had a large motor been installed in the engine-room little or no saving would have been effected. A little consideration will make this clear. The electricity used at Wyndham is generated in Invercargill by steam-power and then transmitted a distance of twenty-seven miles. If the steam-engine is merely replaced by an electric motor of equal power its operation at Wyndham would necessitate the consumption of an amount of coal at Invercargill power-station nearly equal to that required by the present steam-engine, the only economy it would be possible to effect being due to the higher efficiency of the steam plant at Invercargill power-station as compared with the efficiency of the small steam-engine and boiler at the factory.

It is only by careful and scientific installation of motors of the correct power and specially designed for the particular machine they are to drive that the maximum economy may be obtained. Collective driving by electricity—that is, driving the whole factory by one large motor—is comparatively inefficient, although it still has to be used in the case of steam-power. Individual drive—that is, one motor for each machine or group drive, in which case two or more similar machines are grouped together and driven by one motor—is the more efficient method of applying electric-motor drive. Each method has its advantages and disadvantages, and these have to be carefully considered with relation to the cost of installation of each method.

Individual drive has the advantage of allowing of direct coupling to the driven machine, or where belting is necessary it is reduced to a minimum: this reduces maintenance and running costs in belt-renewals and oil. A further advantage is that a motor of the exact power required to drive the machine may be used. It also enables the motor to operate at higher efficiency, for the reason that electric motors, in common with other prime movers, operate most efficiently at or near their full load. Another advantage of individual drive is that the driven machines, together with their motors, may be made self-contained units. This is of great advantage where there is a possibility of the plant having to be moved or reduced in size, or where part only of the plant is required at the beginning or towards the end of the season.

One disadvantage of individual drive is that the capital cost of several small motors is greater than that of a few of larger size, giving the same total horse-power. Another disadvantage becomes of importance when the machines to be driven require only little power. This is due to the fact that small electric motors have an inherent