

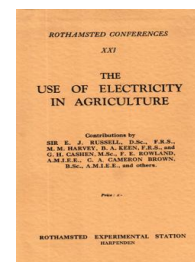
Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

The Use of Electricity in Agriculture

[Full Table of Content](#)



The Discussion

A. H. Rankin; J. I. Bernard; H. B. Jenkins; Borlase Matthews, C. Waley Cohen; J. R. Moffatt

A. H. Rankin; J. I. Bernard; H. B. Jenkins; Borlase Matthews, C. Waley Cohen; J. R. Moffatt (1937)
The Discussion ; The Use Of Electricity In Agriculture, pp 70 - 72 - **DOI:**
<https://doi.org/10.23637/ERADOC-1-213>

DISCUSSION

Mr. A. H. Rankin (*Agricultural Development Officer, North Metropolitan Supply Company*) opened the discussion. He said that practically everybody agreed that electricity was the most suitable source of power and light, provided its cost was reasonable. He announced that consumers in the North Metropolitan area could now obtain electricity at the low cost of $\frac{1}{2}$ d. per unit provided their heavy demands (e.g., motors and sterilizers) were kept off the peak period. In practice this only amounted to the restriction that they should not be used after 4 p.m. in winter, i.e., after the end of the farm-day, so the restriction was by no means an onerous one, and he anticipated that all dairy farmers within his area would soon have electric sterilizers.

He pointed out that if the new reduced cost per unit were used in place of the figure employed in the paper by Mr. Cashen and Dr. Keen, it would place electricity in a very favourable position.

He asked users in rural areas to realize that the fixed charge, which was sometimes regarded as irksome, was worked out on such a basis as in effect to charge them about 6d. per unit for the current used in lighting—a not unreasonable price. He stressed the need for the proper covering of farm motors which were often left in very wet or dusty places. Protected type motors were often fitted in sites where totally enclosed patterns should be used. He was not particularly attracted by the portable motor, as in his experience most farmers soon place them in a permanent position. He did not think that soil heating by electricity was very practicable; a more promising development was the circulation of hot water through underground pipes by an electrically driven pump, a method that had been successfully tried at the Hertfordshire Farm Institute, St. Albans.

With regard to the Rothamsted comparisons between the diesel engine and the electric motor the possibility of increased taxes on oil fuel should be borne in mind.

Speaking of Mr. Cameron Brown's paper he felt that farmers must, in the nature of the case, leave a great deal to the wiring contractor. A reputable firm would give a five years' guarantee. Earth leakage devices attached to individual circuits were desirable, but at present they were somewhat expensive.

Mr. J. I. Bernard (*Rural Electrification Officer, British Electrical Development Association*) felt that the best course for a farmer was to put his trust in a reputable contractor who would carry out the farmer's wishes in a competent and reliable form. He recommended earth leakage devices as a valuable safeguard against danger, but he felt that the risk in using electricity on farms had been over-estimated: in industry heavier voltages were handled under even

THE USE OF ELECTRICITY IN AGRICULTURE 71

more difficult conditions, and with improved equipment mishaps were continually becoming less frequent. Careless use and the neglect of precautions involved danger whatever form of power was used, and there was no justification for regarding electricity as more dangerous than other sources of power.

The ability of an electric motor to stand an appreciable overload for a period without damage or stalling was a great advantage for farm purposes. He felt that the Rothamsted figures of comparative power consumptions were not of general application owing to the difference in working conditions from district to district and even from farm to farm. He wished to know the basis on which various overhead charges had been assessed, since the figure for the ratio of running cost to depreciation in the case of the oil engine seemed to differ from that generally adopted for commercial engines. Another point bearing on the interpretation of the Rothamsted experiments was that the manufacturers of barn machinery tend to over-estimate the horse-power requirements of their machines. Therefore, in his opinion, smaller power units than those recommended could safely be used ; this was particularly the case with the electric motor, in view of its already mentioned capacity to stand an overload for a time.

He thought it was generally accepted that provided the cost of electricity did not exceed 2d. per unit it was well worth while for farm purposes. Any trouble or dissatisfaction was usually attributable to the standing charge ; some farmers do not understand that the cost of transforming the supply and conveying it to the farm has to be met by some means, but difficulties of this kind were not general ; the whole attitude of farmers towards electricity had changed in the last few years.

Mr. H. B. Jenkins (Bedford Electricity Supply Dept.) spoke of his experience with farmers in the Bedford area where an early rural electrification scheme had been established. None of these farmers had any electrical knowledge. Operations that formerly needed a skilled man to maintain an internal combustion engine in efficient running condition could now be done by a boy who merely turned a switch. He deprecated fixing lead-covered cables on oak owing to the danger of corrosion. This was no new discovery, for an examination of churches having lead flats or roofs shows that the builders invariably interpose a layer of some other wood (usually pine) between the lead and the oak beams.

Mr. Borlase Matthews (East Grinstead) thought the Conference marked the beginning of a new era in the history of electricity in agriculture. The farmer's business was to farm, not to be an engineer. All he needed was a sure source of power and this was unquestionably provided by electricity. At the same time there was needed a comprehensive set of reliable figures on the performance of this new source of farm power in comparison with the older forms ; the Rothamsted experiments were designed to supply such figures.

72 THE USE OF ELECTRICITY IN AGRICULTURE

He saw no great future for the portable motor, and he recommended that each important machine should have its own motor of the correct size and type and preferably built in as an integral portion of the machine. It was costly and, in his opinion, unnecessary to provide the farm with an installation capable of dealing with the occasional periods of heavy loads, such as threshing time. Portable transformers were now available for this purpose. An electric plough was on the market and was a commercial success; the cost was only 2s. per acre. Land cultivation by electrically driven machines would greatly increase the agricultural demands for electricity during the off-peak period. Electrically worked pumps were employed for overhead irrigation in a machine known as the "rain cannon." This method was cheaper than the customary one and more closely simulated rain. He stressed the great convenience of electric lighting in the farm buildings, as in addition to easing the stockmen's working conditions it saved them at least half an hour per day. He had made a point of noting every use to which electricity had been applied on the farm; his list included some 300 different operations. A novel one of these was the erection of cheap temporary stock enclosures consisting of a single strand of wire charged to a suitable low potential. The fence was perfectly stock-tight since directly a beast touched the wire it received a slight shock.

Colonel C. Waley Cohen (Chichester) thought it would be a good policy for the supply companies to give the farmer a definite figure for the cost of bringing the supply to his premises. He would then know what the company had to pay and would realize that a certain interest had to be borne on this sum. He thought 20 per cent. for the first year was too high; a lower figure would lead to an increased use of current. Once electricity is brought to the farm its use should be encouraged in every possible direction and for this purpose the cost should be kept to 1d. per unit as a maximum. He felt that really skilled advice about wiring installations was still rare. Insufficient attention was paid to placing plugs and switches at convenient and safe points, and to designing an installation that would give maximum convenience at once and yet be capable of inexpensive extension when needed. Advice of this nature had saved him £75 on a £175 contract. He was not in favour of giving the wiring contract to the supply company as they often had expensive subsidiary companies for such work; he preferred the independent contractor.

Mr. J. R. Moffatt (Farm Manager, Rothamsted) spoke of the usefulness of the $\frac{1}{2}$ h.p. motor for jobs such as potato sorting and knife grinding. Its convenience was great while its running cost was negligible.

In closing the discussion the *Chairman* dealt with a number of points. The supply companies were always willing to advise a farmer on technical matters. No installation was connected to the