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## A Parallel Carbon Arc for Direct Current

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meat was made by means of a spectrophotometer in the spectral region between 500  $m\mu$  and 700  $m\mu$ .

At the present time the most common method of measuring the color of meats consists in a comparison of the surface with a Munsell Color Disc. This method is considered quite satisfactory by some authorities but its reliability is seriously questioned by others. A spectrophotometric study of the Munsell Color Disc set for different cuts of meat shows that it does not give a true indication of the spectral color of the meat.

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### BALLISTIC AMPLIFIER

J. M. B. KELLOGG

A vacuum tube circuit is described by means of which a pulse of voltage (such as that produced by the discharge of a condenser through a resistance) is amplified and produces a throw in a ballistic galvanometer. The device is quantitative and the experimentally determined amplification agrees with the computed.

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### A PARALLEL CARBON ARC FOR DIRECT CURRENT

L. B. SPINNEY

An arc between carbons of equal diameter placed parallel to each other and spaced a small distance apart operates automatically on alternating current and the carbons burn down equally.

When supplied with direct current the positive carbon is consumed at a rate approximately twice as great as that of the negative. Therefore to operate the ordinary parallel carbon arc on direct current some provision must be made to move the positive carbon forward, or a larger carbon must be used on the positive side of the circuit.

There are obvious objections to either of these arrangements, to overcome which an arrangement of three carbons is proposed.

The three carbon direct current arc is arranged with a large carbon at the center with two small carbons on opposite sides. The large carbon is connected directly to one side of the supply circuit

and each of the other carbons is connected through a ballast resistance to the other side.

With carbons of proper diameter it is found that the double arc thus formed burns steadily and without flicker and the carbons burn down equally.

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## A SIMPLE REFRIGERATION SYSTEM FOR THE FARM

L. V. CRUM

The object has been to find a cheap and efficient method of storing and insulating ice which might be used for cooling purposes on the farm.

A large tank was filled with a solid cake of ice by adding a small amount of water each evening during cold weather. The cooling chamber consists of a small compartment directly beneath the metal base of the tank, and is well insulated from outside effects.

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## X-RAY DIFFRACTION BY ORGANIC SOLUTIONS

ALFRED W. MEYER

Series of ionization diffraction curves of two organic solutions with varying concentrations were obtained using Mo K $\alpha$  radiation. The solutions used were normal butyl alcohol with orthodimethyl-cyclohexane and normal ethyl alcohol with cyclohexane. The diffraction peaks were found to shift from the peak of one member to that of the other as the solution was changed from 100% of one member to 100% of the other. Also the width of the peak was found to vary in the same manner with the exception that the width was a maximum at a low percentage of the liquid, the peak of which was of least width. There was no evidence of a double peak indicating that the liquids did not diffract individually. A curve was obtained by using the components separately but measuring the diffraction of both liquids simultaneously and this curve clearly showed the peaks of both liquids. This proved that the spectrometer could resolve the peaks of both liquids if they had been present in the diffraction by the solutions.