Power supplied commercially to most types of electrical apparatus is subject to undesirable fluctuations. Regulators combining electrical and mechanical methods are used, but such stabilizers are not suitable for use with precision electronic instruments because they react too slowly. A new type has been developed which can correct supply fluctuations within one-tenth of a second, and maintain an output of several kilowatts constant within a fraction of one percent.

Applied Biology.—Work in applied biology includes investigations on food preservation, the synthesis, composition and utilization of plant and animal products, the effects of environment on animals, and statistical interpretation of biological data. A few examples follow.

Citric acid is now being produced on a laboratory scale by submerged mould fermentation of sugar-beet molasses. Seventy percent of the sugar is converted to acid in less than three days. This fermentation rate is about three times as high as that of other known methods. High-temperature treatment of certain vegetable oils has resulted in improved flavour stability but with some decrease in nutritive value. Taste tests of frozen whole milk and of frozen evaporated milks prepared by two different methods indicate that the whole milk keeps better. The keeping qualities of the evaporated milks are affected by the method of concentration.

When foods and certain other biological materials are quick-frozen for preservation, the question arises as to whether the ice formed becomes continuous throughout the frozen material. Work with an artificial system indicates that cell membranes or concentrated cell saps may act as barriers to continuous ice formation thus preventing loss of flavour on thawing.

The work of the Prairie Regional Laboratory at Saskatoon, Sask., is closely allied with the Applied Biology Division at Ottawa. New antibiotic and enzyme-producing fermentations are being studied there, and radioactive tracers are being used to obtain a better understanding of certain fermentation mechanisms. Many bacterial antibiotics have been checked for possible use in the control of plant diseases in western Canada.

Crop utilization studies include work on starches, proteins, oils from rapeseed, flax, sunflower and similar crops, and the straw residue. Methods have been developed for the production of undenatured gluten for use in improving the baking properties of lower grade wheat flours. Fibre wallboard produced in a pilot plant using straw as the pulp material has proven superior to standard commercial boards.

Chemistry.—Corrosion of metals is a long-term study in the Division of Chemistry. A survey is being made of the various types of corrosion inhibitors used in automotive cooling systems. Typical inhibitors proposed for use in new and reclaimed antifreeze solutions are being tested.

Investigations are proceeding on the quality of motor-vehicle paints and test methods are being developed for the assessment of insulating varnishes, finishes for electronic equipment, undercoatings for vehicles, and fire-retardant paints which are used on structures where the fire hazard is an important consideration.

In the field of aviation, the Division has won recognition for its rain-repellent preparation, FC-10, for use on aeroplane windscreens. Lately, the procedure for applying this preparation has been further simplified.

Mothproofing of fabrics is of great importance, not only to the householder, but also to the military services because of the necessity of storing and shipping clothing consisting of wool or part-wool fabrics. Shrink-resistant treatment for