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A new portable electrocardiograph.

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This instrument was developed in collaboration with L. T. Robinson, H. B. Marvin and J. K. Leibing of the General Engineering Laboratory of the General Electric Company at Schenectady, N. Y. It consists essentially of a special three stage amplifier, a special mirror galvanometer and a camera which is operated by a modified phonograph mechanism. The total weight of the instrument with batteries and all accessories in two carrying cases of rugged construction is seventy-eight pounds.

Amplification of the action current of the heart is obtained by an amplifier which resembles a radio amplifier. Two tubes of type PR-1-C and one tube of type 201-A are employed. There are special resistances so constructed as to be unaffected by temperature changes and to permit accurate standardization of the electrocardiogram. The batteries consist of a six volt storage battery and seven 22-volt dry cells.

The galvanometer consists of a small iron vane ruggedly suspended in a cell full of a clear oil of appropriate viscosity and situated in the field of a permanent magnet. To this vane is attached a small mirror. Movement of the vane is produced by means of two coils placed at right angles to the field of the permanent magnet in such a way that current passing through the coils modifies the magnetic field and causes the vane to alter its orientation. The deflection time is considerably shorter than the deflection period of the string galvanometer used in the ordinary electrocardiograph, and the viscosity of the oil in which the moving system is suspended is adjusted so as to make it dead beat. The movement of the small mirror is recorded by means of a small filament lamp the light of which is focused on the mirror by a lens and is thence reflected on to a strip of standard moving picture film. This film is moved at a constant speed by a spring motor, and is contained in a small camera which is detachable from the apparatus for removal to the dark room and subsequent photographic development.

Careful tests of the instrument and comparisons with the standard non-portable electrocardiograph have demonstrated that it gives an accurate and dependable record. Its rugged construction and reduced weight permit it to be taken to the patient's home with facility.

(The electrocardiograph was demonstrated at the meeting.)

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The nutritive value of the various layers of the wheat and corn kernel.

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Much work has been done on the relative vitamine content of the several layers in cereal grains. The peripheral layers and the germ are rich in vitamines. There is, however, not so much information available with regard to the relative content of the proteins in the various layers. The present contribution concerns itself with a chemical as well as a biological analysis of such proteins. The milling fractions of wheat and corn[1] were analyzed to determine their content of total protein, gliadin (the portion soluble in 70 per cent alcohol), globulin (the portion soluble in 5 per cent potassium sulfate solution) and glutenin (obtained by subtracting the protein representing globulin and gliadin from the total protein). The methods followed were those outlined in Methods of Analysis of the Assoc. of Official Agricultural Chemists, 1920. At the same time, the biological value of the wheat

[1] These samples were kindly supplied to us by the Washburn-Crosby Co.