

the apple in the X-ray beam. The method was not considered of commercial value. The co-operation of Mr. J. M. Graydon (Messrs. Watson Victor, Ltd.) and the Superintendent of the Public Hospital, Wellington, is gratefully acknowledged.

(b) Control of Conditions obtaining in a Cheese-curing Room: Some help was given by the Laboratory to the Dairy Research Institute in this connection. An experimental curing-chamber was built to control humidity and temperature, and to produce air movement of a definite amount past the cheese.

### (3) PUBLICATIONS.

The system of issuing bulletins has been adopted by the Laboratory, and the following were issued this year:—

- No. 1.—“The Flexural Strengths, Elastic Limits, and Moduli of Elasticity of some Fibrous Boards,” by C. N. Watson-Munro. *N.Z. Jour. Sci. & Tech.*, 21, 101b.
- No. 2.—“X-ray Detection of Mouldy Core in Delicious Apples,” by L. W. Tiller and E. R. Cooper, *N.Z. Jour. Sci. & Tech.*, 21, 168A.
- No. 3.—“Climatic Factors relating to Outbreaks of Facial Eczema in New Zealand,” by E. R. Cooper and D. Walker. To appear in June, 1940, issue of *N.Z. Jour. Sci. & Tech.*

### (4) THE MAINTENANCE OF PRIMARY REFERENCE STANDARDS, AND THEIR APPLICATION TO INDUSTRIAL STANDARDS.

Liaison has been established with the standards organization of the Council for Scientific and Industrial Research, Australia, and it is hoped, as soon as it is practicable, to establish a sub-testing station at Wellington, under the direction of the Department of Scientific and Industrial Research, equipped with sub-standards of special importance to New Zealand manufacturers.

### (5) DESIGN AND CONSTRUCTION OF INSTRUMENTS.

The workshop has been very active, and is satisfying numerous and varied demands by the branches of the Department. Skilled instrument mechanics are few in New Zealand, and cadets are therefore being trained in the workshop so that eventually a team of mechanics with the requisite background of scientific knowledge will be obtained.

Some of the major items of instrument construction which have engaged the workshop staff this year are detailed below. In addition to this work, however, innumerable small items of instrument repair have been dealt with, and the service rendered has undoubtedly proved very useful to the various departmental laboratories. Radiation solarimeters for facial-eczema investigation, Ruakura; time chart exhibited by Dominion Observatory at the Exhibition; N.P.I. type, thermal insulation apparatus; two needle valves and flowmeters; millivolt potentiometer for field use; voltage doubler; voltage stabilizer; balloon rollers; switch panel; set of switch arms; repair of 100 binoculars; strain gauge to measure 0.00001 in.