

extension of the area capable of supporting the crop. Pasture problems are being investigated both from the agricultural and the chemical point of view, special attention being paid to their mineral content and improvement by means of the introduction of superior species and strains.

Survey and classification of the various soil types in Australia forms a further branch of the work in the chemical section, and fertility problems, particularly in the irrigation settlements, are also being investigated. Entomological work has only been in progress since 1929, but already much valuable information has been obtained with regard to various pests of pasture, cereal and orchard crops. Diseases of agricultural crops inevitably form an important branch of the work of the Institute, and deficiency

diseases due to a lack of some mineral element have also been successfully investigated. Breeding experiments with the view of securing varieties with improved resistance to fungus diseases form a natural corollary to the work of the plant pathology section.

Besides the land devoted to agricultural experiments, a certain area is reserved as a permanent park. Advantage has been taken of this to plant a portion as an arboretum, one section being used for indigenous, and another for introduced, species. The report includes a list, with abstracts, of the 141 papers published from the Institute during the years under review, reference to which will indicate the important results on widely different subjects which have already been obtained.

The British Pharmaceutical Codex

THE Codex Revision Committee of the Pharmaceutical Society of Great Britain is issuing in the form of small monographs the reports of its sub-committees* which have been considering different aspects of the Codex in view of its revision this year. The next issue will contain about 300 monographs on crude drugs of vegetable origin of which less than seventy are included in the British Pharmacopœia.

The report of the Pharmacognosy Sub-Committee gives a summary of the principal standards for crude vegetable drugs, which have been accepted provisionally for inclusion in the new edition of the Codex: the standards of purity are based on determinations of foreign matter, alkaloid content, ash, extractive, etc., carried out in a manner similar to the corresponding tests of purity for the drugs in the Pharmacopœia. The report does not deal with the larger part of the sub-committee's work which is concerned with the revision of the descriptions, characters, constituents and commercial varieties of crude vegetable drugs.

The report of the Action and Uses Sub-Committee supplies descriptive portions for about fifty drugs, mostly of animal origin, including antitoxins, toxins

and gland products. Among the substances described are scarlet fever toxin and antitoxin, new tuberculin, antimeningococcal, antipneumococcal and antistreptococcal sera, gonococcal, pneumococcal and staphylococcal vaccines, rennet, extracts of parathyroid and suprarenal cortex, œstrin, desiccated stomach and vitamin A, B, C and D concentrates. Standards are suggested for the different preparations. In addition, the sub-committee has revised the "actions and uses" sections of about 1,000 monographs, although their recommendations are not included in this report.

The report of the Pharmacy Sub-Committee includes the principal new and revised formulæ, expressed in both metric and imperial systems, suggested for the formulary section of the Codex. In addition, according to the introduction to the report by the editor, Mr. C. E. Corfield, the sub-committee has worked out tests which it has recommended should be included to form B.P.C. standards for the different preparations. It has also recommended the inclusion of alcohol limits for the concentrated infusions, spirits and tinctures, as well as formulæ for a number of preparations from earlier pharmacopœias which are not included in the British Pharmacopœia 1932, but are still in more or less frequent demand. The reports are issued in the hope that useful comments on the suggested revisions will be received.

* The Pharmaceutical Society of Great Britain: Codex Revision Committee. Reports of Pharmacognosy Subcommittee (pp. 20: 2s.), of Action and Uses Subcommittee (pp. 14: 1s. 6d.) and of Pharmacy Subcommittee (pp. 49: 2s. 6d.). The Pharmaceutical Press, 23 Bloomsbury Square, London, W.C.1.

Valve Conditions in the Internal Combustion Engine

MAINTENANCE of the automobile engine of to-day is little more than a process of periodic adjustment and replacement, necessitated by wear in component parts. Accordingly any systematic study of the factors causing or influencing such wear will be followed with interest by users and manufacturers alike. In recent years, the Research Committee of the Institution of Automobile Engineers, Watergate House, York Buildings, Adelphi, W.C.2, has undertaken the investigation of wear occurring in various parts subjected to the trying temperature conditions existing in and about the combustion zone. This work has been particularly fruitful. Last year the Committee issued a report on "Cylinder Wear" which attracted considerable attention, and now it has published the results of its work on "Valve Seat Wear".

The first part of the present report deals directly

with valve seat wear and describes the experimental technique adopted to discriminate between actual wear in the valve seat and distortion of the valve. Two types of valve material were used. With both, the rate of valve sinkage increased rapidly with increase in tappet clearance and, within the practical temperature range, with rise in temperature. In the one case, however, the valve sinkage was mainly due to seat wear, whereas in the other, it was almost entirely attributable to distortion or 'dishing' of the valve head. Tests with different widths of valve seat bring out the fact that wear is quite independent of seat area.

The important effect of temperature prompted an investigation of the factors influencing exhaust valve and seat temperatures. The results obtained are set out in the second part of the report, and show the influence upon valve and seat tempera-