

Research Notes.

The Influence of Ovarian and Anterior Pituitary Hormones on Calcium Metabolism.

THEODORE F. DIXON (*Biochem. Journ.*, 27, No. 2, pp. 410-419) doubts, after experimental verification, the belief that internal secretions have some influence on the calcium metabolism of the body. Careful examination of serum calcium levels of rabbits and dogs after injection of the ovarian and corpus luteum extracts has shown no significant variation. Pregnancy also does not seem to produce any change in the calcium level of rabbits. No noticeable influence of anterior pituitary extract on the serum calcium level of rats is seen, even if the injection is sufficient to produce luteinisation of the ovaries. The older observations of Bell, Widdows and others suggesting changes in serum calcium levels in different stages of the growth of the reproductive organs in man are probably due to other causes. In animals, however, where, as in rabbits, the serum calcium level is variable even under normal conditions of diet, any estimations regarding the serum calcium levels are liable to be faulty.

Effect of Radium on the Metabolism of Cultures of Embryonic Kidney Tissue.

It appears that the action of γ radiation on protein and carbohydrate metabolism varies. B. E. Holmes (*Biochem. Journ.*, 27, No. 2, pp. 391-397) finds that a fourteen hours' exposure of embryonic kidney tissue to γ rays from 300 mg. radium in a platinum container .5 mm. thick arrested carbohydrate breakdown while it produced no effect on protein breakdown. The contradictory results obtained by earlier workers like Crabtree and Krontowski were probably due to the faulty containers used which allowed a certain amount of β radiation. And the effect of β radiation on tissues is fundamentally different.

Studies on Cholera Bacteriophage.

ASHESHOV and his co-workers have published the first of three parts of their enquiry (*Ind. J. Med. Res.*, 20, 1101, 1127, 1159, 1933). The first part relates to the general technique and gives details of preparation of media, growth of cultures, isolation of the phages and such like opera-

tions; the second one is devoted to the classification of the phages on the basis of the Type-test; and the third part relates to the study of the virulence and development of bacteriophage. The defects in the previous methods of evaluating the potency of bacteriophages are indicated and a new one based on the rate of multiplication suggested. The above observations are of considerable importance and should eventually form the basis of an effective scheme of treatment for checking outbreaks of epidemics, but the intrinsic value of the publication has been vitiated by personal opinions which are not entirely supported by the observations. The text is also unnecessarily lengthy, the commonest details in bacteriological technique being described with the most elaborate care. It is hoped that the above defects will be eliminated from later publications.

The Cultivation of Cereals in Kent in the Thirteenth Century.

MR. R. A. PELHAM, M.A., of Birmingham University, has been unearthing in the Public Record Office some interesting information about the growing of grain crops in Kent during the 13th century. At that period military expeditions were common occurrences, and it was the duty mainly of the sheriffs to raise supplies of food and equipment from both laymen and ecclesiastics, the latter including the Archbishop of Canterbury, the Prior of Christchurch, Canterbury, and the Abbot of St. Augustine's, Canterbury, whose manors were dispersed throughout the county. The study of an account roll, which includes the names and contributors of nearly 700 people in Kent who supplied grain for an expedition to Gascony in 1297, has led to the somewhat startling inference that the distribution of wheat, barley and oats in Kent at that time was almost exactly the same as it is to-day, except in Romney Marsh, which was not then used for rearing sheep. Mr. Pelham, who writes in the *Empire Journal of Experimental Agriculture* (published by the Oxford University Press) concludes from his interesting study that although the tillers of the soil in the days before the Black Death may have used very wasteful methods of cultivation compared with modern practice, they were by no

means ignorant of the main soil conditions that their cereal crops required.

Comparative Effect of Tomato and Orange Juices on Urinary Acidity.

It was reported by Saywell last year that several common fruits exerted a remarkable effect on urinary acidity of men and L. G. Saywell and E. W. Lane (*Journal of Nutrition*, 6, No. 3, 263, 1933) have continued the work and determined the effect of tomato and orange juices on urinary acidity. An increase in the urinary pH is noticed though the average increase in case of orange juice is a little less than that of tomato juice. There is, however, a decrease in the ammonia excreted. An increase in the alkaline reserve and the organic acids excreted were the other significant changes in the urine.

Agriculture in the Empire.

[Views of Mr. J. H. Thomas and Major Walter Elliot.]

To the first number of the *Empire Journal of Experimental Agriculture*, which has lately been issued by the Oxford University Press, the Secretary of State for the Dominions and the Minister of Agriculture contribute some striking expressions of their views on the fundamental importance of research work in the development of Agriculture in the Empire.

Mr. Thomas states that in agriculture, as in every other human activity, we seem to be passing into a new world. There never was a time when tremendous changes were more certain, when events were harder to forecast or when action was more difficult to plan. The founders of the *Journal*, he continues, have had the wisdom to discern and the enterprise to back the only certainty in sight, and they have recognized the one sure contribution which can be made at this moment to the future of the Empire Agriculture. That contribution is to provide that those who are responsible for guiding agricultural policy shall keep in close touch with one another and shall quickly pool for the common advantage every new fruit of discovery and invention in the field of agriculture. As Lord Balfour so truly remarked:

"Let us cultivate easy intercourse and full co-operation will follow."

Major Walter Elliot welcomes the new *Journal* as a natural and valuable development from the Imperial Agricultural Conference of 1927, which did so much to foster among scientific workers in all Empire Countries the desire to combine their knowledge and to approach their tasks with the consciousness that the problems of agricultural science concern not only the parish or county or even the country but the whole world. Science knows no geographical boundaries and in an Empire which fundamentally is founded on agriculture, it is impossible to over-estimate the value of co-operative research work in agriculture.

Insect Transmission of Peach Yellow.

THE gray leaf hopper, *Cicadula sexanotata* Fall, which is known to transmit aster yellows to a large number of different plants including one species belonging in the Rosaceæ, is unable to transmit aster yellows to peach. L. O. Kunkel of the Boyce Thompson Institute now reports successful transmission of peach yellows by the leaf hopper *Macropsis trumaculata* (*Contributions to the Boyce Thompson Institute*, 5, 19, 1933). This was found in large numbers on peach trees. It occurs also on plums. It never hops but runs rapidly and hides very well. It scarcely flies except when closely pressed. The adults and nymphs generally feed on twigs and large branches, and are only occasionally found on the leaves. Because the insect produces only one generation in the year, experiments are difficult. The insects were fed on diseased peach seedlings confined in insect-proof cages for varying times. They were then transferred to healthy seedlings. The trees were all kept in green house which was frequently fumigated to keep free from sucking insects. But one drawback is that seedlings on which insects have been fed suffer from wilting which depends on the number and time allowed. The cause of wilting could not be traced to any bacteria or fungi. Probably the insects inject some deleterious substances that cause wilting. The percentage of successful transmission of disease was only 10. Several other species of insects including aphids and borers were tried for their ability to transmit the diseases without any success.