Population increased by 19 per cent. between the two censal years 1901 and 1931, but if we compare the first and last quinquennia, as in the case of production, the increase is only 13 5 per cent. Thus, when population increased by 13·5 per cent. production increased by 29 per cent. The index would be much higher if we take the arithmetic mean; for the production of several commodities increased enormously during the period. Groundnuts, for example, increased from 93,000 tons to 2,466,000 tons, i. e. 2,500 per cent. Industrial production has also increased rapidly; the annual production of cotton textiles increased from 500 million yards in 1900 to 2,654 million yards in 1931–32. Hardly any pig iron was made in 1900; but 1,085,000 tons of it was made in 1931–32.

Thus, whatever period we may take, there is no indication that population has outstripped production. It does not mean that India is not overpopulated. It may, or may not be; that is a different question, and I do not propose to deal with it here. All I can see from the statistical study carried out is that if India was not overpopulated in 1900—and that is the view of some—it is not overpopulated now. Production has been keeping pace with population; and in some lines—e.g., industry, commercial crops—it has increased at a much more rapid pace than population. And this progress has been kept up during the world depression—and that is a significant fact. [From the *Madras Univ. Journal* Vol. VII, No. 2, pp. 93—102 by courtesy of the Author].

ABSTRACTS

A simple apparatus for measuring the compactness of soil in the field, and some results obtained in a cultivation experiment. By O. V. S. Heath (*The Empire Jour. of Experi. Agri.* vol. ii. No. 7 pp. 205—212). The article describes a simple and easily-made apparatus, for measuring compactness in a soil, the method of working it, and the results obtained with it. Based on the principle of the stratometer, the apparatus consists of a tripod, supporting an iron rod which bears at its lower end a steel cone. A length of steel pipe surrounding the rod, serves to carry the force of impact direct to the cone, the rod only serving as a guide. The weight is lifted to a mark on a graduated scale behind and allowed to fall freely, thus driving the point into the soil. A "soil plate" placed flush with the soil, and provided with a projecting tube which prevents loose soil falling into the hole made by the steel cone, completes the apparatus.

The apparatus was used on a cultivation experiment with three treatments, which were designed to give different degrees of soil compactness, namely:—normal, grubbed and compressed soil,—and results obtained by the apparatus are very comparable and satisfactory. More than any thing else, cheapness of its construction, should appeal, to all who desire a fairly satisfactory method of comparing soil compactness in different treatments. M. R. B.

Activation of cambial growth by pure Hormones. By R. Snow (*The New Phytologist*, Vol. 34, No. 5, p. 23). An extremely interesting paper which throws light on the possible nature of the hormone present in leaves, which is responsible for cambial growth. Urine being a good and abundant source of auxin and other hormones, the ether-soluble extract of urine was tried on young sunflower seedlings, which were decapitated before applying the solution to the cut surface. The experiment was also done in the hypocotyl-region and the results show that cambial growth is activated by solutions in gelatine of synthetically prepared hetro-auxin and auxin-£—in minute concentrations. From the results, it is concluded that the normal cambial growth is promoted in plants by the same growth—hormone (perhaps auxin-£) in young leaves. M. R. B.

The non-protein nature of a fraction of soil organic Nitrogen. By A. W. J. Dyek and R. R. Mckibbin (*Can. Jour. of Res.* Vol. 13, No. 5, pp. 264—269). In the case a number of samples of organic soils, drawn from widely different locations in the

province of Quebec, the authors found that there were considerable differences in the percentages of nitrogen, as determined by the Kjeldahl and the Dumas methods. The latter always gave a higher figure, the difference between the two methods varying from 6·4 to 29·6% of the total nitrogen. The results therefore lend support to the belief, that not all the nitrogen in the soil is of a protein nature and that the non-protein nitrogen which may be an appreciable fraction, is not estimated by the Kjeldahl method. M. R. B.

Some factors affecting the influence of soy beans, oats, and other crops on the succeeding crop. By D. R. Dodd and G. G. Pohlman. (*Bull. 265 Agri. Expt. Stn. West Virginia Univ.*) Different investigators having reported different results as regards the effect of soy beans (grown for hay and for seed) on the succeeding crops, the authors attempted to study this effect in a three fold direction.

1. to determine the effect of a crop of soybean hay as compared with oats on the yield of corn, wheat, buckwheat, potatoes and oats, following. 2. to determine the effect of respective crops of oats, buck wheat, potatoes, wheat and corn or the yield of following crops of soy beans and oats. and 3. to determine the effect of these various crops and cultural treatments on the nitrate and moisture content of the soil, and the relationships of these contents to the yields of crops.

Results obtained showed that as regards (1), the yields of oats (both grain and straw), wheat *grain* and corn grain were significantly higher when following soybeans than when following oats, but as regards potatoes, clover and wheat straw, the difference was not significant. As regards the 2nd point, wheat was found to be the best crop, to precede oats or soy beans. During the growth of soy beans, the nitrate content of the soil diminishes reaching a minimum at the time of removal of the crop; the soil recoups gradually after the removal of the crop and therefore sufficient time (about 3 weeks) should be allowed after the removal of the soy beans, for the store of available Nitrogen to be replenished, before the next crop is planted; as an alternative an addition of 50 pounds of Sodium Nitrate per acre, may be applied. M R. B.

Gleanings.

Bees in Court. Near Amity, N. Y. lived two brothers, surnamed Utter. One was a peach grower by general occupation while the other added beekeeping to his various other rural pursuits. For some time a bad feeling existed between the two, and then Peach Utter conceived the idea that the bees of his brother, the beekeeper, were injuring his peaches and even killing the trees. Upon these allegations he based a complaint and brought a suit for damages against Beekeeper Utter. The judge gave a judgment of 25 dollars and costs against Beekeeper Utter. On this, the National Beekeeper's Association, America whose attention was called to the matter, employed competent counsel and took the matter up to the country court. The final trial which came off on 17th, 18th and 19th December 1931, before the country court was stubbornly contested by both sides, about 30 witnesses were examined and the jury after 10 minutes' deliberation brought in verdict for the defendent, Beekeeper Utter.

There were in attendance, witnesses ready to render expert testimony to the fact that, bees do not and cannot puncture sound fruit; some laughable testimony was given by the witnesses for the prosecution, like the statements ' that the bees used their horns (antennae) to make holes in the fruit,"—which only illustrated the prevailing ignorance in regard to bees. Professor Benton one of the defence witnesses showed by live and dead specimens of bees, and also by charts