analytical figures are available as this characteristic is of minor importance when compared with the wider variations which exist in the weight of the fruit.

The experimenter then discusses the effect of after-ripening. He has found that with the oil palm, in contrast to other fruits, if an unripe bunch is cut and preserved for 'ripening' the oil content, if calculated on the nut, shows no apparent increase with keeping.

As regards losses in gathering the fruits over-ripe, it was observed that the greatest losses occur from the dropping of the fruits from the bunch. It was also found that 'the oil content in the *outer* fruits decreased after reaching the maximum. The same loss of oil content was also found in some cases for the inner fruits. In other cases, however, an increase of oil content was noticed, after the outer fruits had reached their maximum.' From his figures he deduces that the oil content remains constant for 3 days, after full ripeness

The writer finally investigates the problem of the most eonomical collecting period. This obviously would depend on the age of the plantation. By calculation from the figures at his disposal he arrived at the conclusion that by using a 5 days' harvesting frequency the maximum productiveness has been obtained.

SUMMARY.

The general conclusions arrived at are as follows:—

(1) The formation of oil in oil-palm fruits takes place very quickly; under the conditions found around Medan, within 24 days.

(2) Losses caused by harvesting unripe bunches cannot be compensated by ripening after plucking.

(3) There is no objection to harvesting over-ripe fruits, provided that not more than 3 days have elapsed since the fruits have reached their full maturity.

(4) The maximum oil content is reached at the moment that several outer fruits loosen naturally in the bunch.

(5) The free fatty acid content in undeveloped bunches is about the same as that of ripe bunches.

(6) After reaching full maturity the free fatty acid content slowly begins to increase, but after 3 days this increase amounts to 0·6 per cent. only.

(7) An economical harvesting—frequency for the conditions around Medan—is one of 5 days."

Abstracted by A. W. R. Joachim, Agricultural Chemist.

THE CASHEW NUT.

As the Imperial Institute said in a Bulletin of theirs, *i.e.*, of the first quarter of 1916, the cashew nut is worthy of note as one that has been attracting increasing attention in England, besides other countries of Europe and America. The export of the nut was seriously hit by the war, but the trade is now slowly but steadily reviving and its commercial possibilities are also generally recognised.

The cashew tree (*Anacardium occidentale*, Linn) was introduced into India from America. It is native to South and Central America and the West Indies, but is now flourishing on the West Coast of India, and in Indo-China, the Malay Peninsula, the Philippine Islands, West and East Africa and Madagascar. On the Malabar Coast it appears to have been introduced by the Portuguese after whom its fruit is called. The tree in its wild state is of somewhat irregular and spreading habit but under cultivation its growth is more upright. In India it grows best in sandy places, where it is often gregarious, and in South India it thrives in coast-dune reclamation. One satsifactory feature is that it withstands drought well, though its productiveness may sometimes be increased by suitable irrigation. It prefers low altitudes, but in the immediate neighbourhood of the sea its form tends to be stunted, and it does not flourish so well if it is exposed to excessive wind. It is quick growing, and may bear fruit as early as the third or fourth year, though generally not in great quantity till its eighth or tenth year. On the West Coast the flowering begins about January and the fruit ripens in about three months, it being a seasonal crop.

ITS PRINCIPAL SEAT IN INDIA.

In South Kanara, the principal seat of the cashew nut exporting industry of Western India, the tree can be seen growing on the hillslopes in a low bushy form. In shady and sheltered situations, however, it sometimes attains a height of 30 to 40 feet and lives longer than the trees growing in exposed places. Here it throws out its branches in oblique tiers, which drooping under their own weight, impart to the tree the form of a huge bush easily identified by its shining light-coloured foliage. A cashew plantation does not involve much capital outlay. The seeds sprout wherever they drop. The life of the trees being very short, they have to be constantly renewed, but no pruning or manuring is necessary, though they (trees) might improve by systematic cultivation. Scientific cultivation of the tree has yet to be tried. No labour also need be employed in the case of small and compact estates, so that the investment on a cashew plantation is very small compared to tea or coffee.

The cashew tree yields gum, oils, medicine, dentrifrice and foodstuffs, and, of course timber for packing cases, boat building and charcoal, a feature of the gum being that it is obnoxious to insects. The fisher folk have found the tree a good friend, as the bark and the pericarp yield an oil which is used to tan their nets, but the business man will be more interested in the oil obtained from the shell of the nuts, for this is an effective preventive of white ants when used on furniture, books and stationery. A fine light yellow oil can also be obtained from the pressed kernels, which, if properly prepared, is equal to almond oil and is used as sweet or salad oil. Doctors and dentists, too, will find the industry interesting, the fruit having anti-scorbuting properties. In villages not yet invaded by the scented tooth-pastes and powders which at once flood a city market and confuse the buyers, cashew leaves serve the double purpose of tooth-powder and brush, and the users are known to retain their teeth in a healthy condition to a ripe old age, the acrid principle of the leaves acting as a toning agent on the gums.

MEDICINAL PROPERTIE

Before the Abkari Act was passed, every owner of a cashew garden distilled a wholesome liquor from the "apples" and used it for the diuretic properties which it possessed. Administered in advanced cases of cholera, it corrected the kidneys and restored their normal action. Even now, in spite of the vigilance of the preventive force, illicit distillation of the liquor is, from time to time, reported from the outlying parts of the country, furnishing a proof, if proof were neccessary, that the people have not yet lost their faith in the medicinal virtues of a spirit now no longer permitted to be manufactured.

The pear-shaped juicy cashew "apple" is valued solely for the kidney-shaped nut which it carried at the lower end of it. The value of the nut consists in its turn in its edible kernel forming the commodity of export to Europe and America. This, raw or roasted, possesses a bland pleasant taste not unlike that of almond or walnuts, though inferior in dietectic value. The cashew kernels are esteemed as a dessert in Europe. They are also used after roasting, as a constituent of nut chocolate, and have other uses, similar to those of the almond, in confectionery.

The earliest use of the kernels on record was for flavouring Madeira wine, but the inventive faculty of the modern confectioner has created many a new use for them. Like coffee, the nut is to be prepared or cured for export, the process being however shorter and simpler. No machinery is required, women garblers alone being employed. As the roasted nuts are delivered at a curing factory they are exposed to the sun until the last vestige of moisture in them is removed, and until the skin sheathing them is brittle enough to yield between the peelers' fingers. The skin being removed, the condition of the kernels is indicated by the colour which, in the case of fresh ones, is slightly yellowish white, spoiled ones being black or brown. The product passed for export is packed in deal-wood boxes lined with tin to prevent it from being adversely affected by the moisture during the long voyage to Europe or America.—The Planters' Journal and Agriculturist, Vol. II. No. 6.

THE NUTRITION OF CATTLE.

The subject of the feeding of cattle assumes importance from the large part their products play in human dietaries. An accurate knowledge of their metabolism and nutritive requirements, apart from its intrinsic scientific interest, may lead both to more economical methods of feeding and at the same time to an improvement in the quality and quantity of the products, meat and milk, obtained from them. In this survey a brief account will be given of some recent work on the energy, protein and mineral requirements of these animals, with special reference to the production of milk in dairy cows.