

### INDUSTRIES AT DAR ES SALAAM

is moved some 10 miles by lorry to a rail-head at the Ubungo Industrial Centre, (a new development and site of the new £2.5 million Friendship Textile Mill) four miles west of Dar on the Morogoro road, where a godown and shipping centre have been constructed. This became necessary when it proved too expensive to extend a rail spur to Wazo Hill. With investments already at the £2 million mark, the company will build a concrete products factory at Ubungo in 1967. They hope also to modify their original packing plant at the harbour (which handled bulk cement from Mombasa), so it can be used in the future to prepare cement for overseas export.

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### BUGAMBE TEA ESTATE, BUNYORO

In 1960 it was decided to grow tea in Bunyoro primarily as part of the Uganda Government's plans to diversify the country's agriculture and to shift some of its economic dependence on cotton and coffee to other crops, and secondarily to initiate some sort of major agricultural/industrial project which would provide employment in an area of Uganda which had previously received little in the way of development stimulation. The project has taken the form of a plantation controlled by Agricultural Enterprises Ltd., a subsidiary of the Uganda Development Corporation, together with production on small farms in the neighbourhood.

The area selected had to have a probability of receiving between 45" and 70" rainfall in at least 9 years out of 10. In Bunyoro such an area occupies a very narrow belt of some 5 or 6 miles width running parallel to Lake Albert and about 10 miles to its east. The actual annual rainfall figures recorded have been as follows:

1961 — 80", 1962 — 64", 1963 — 71", 1964 — 65", 1965 — 57". The average over these 5 years was 67".

Having decided on the general area in which the estate should lie, paying regard to topographical features such as steep rocky hills, which are to be avoided, and rolling open grassland reasonably free of trees, which is desirable because it makes clearing easy, the actual site was selected from the air by Dr. T. Eden, who had then only recently retired as the Director of the Tea Research Institute of East Africa at Kericho. It was then necessary to get on to the ground and see what the soil was like. As well as a good rainfall, tea needs an acid soil with a pH preferably between 4.3 and 5.6., and it is fortunate that the one condition usually occurs with the other. Heavy rainfall removes bases from the soil by leaching and leaves it in an acidic state usually suitable for tea growing.

The first pioneers arrived on the chosen site in September 1960, but it was not until 1961 that the first tea was planted. Since then planting has taken place at the rate of 300 acres a year, and by the end of 1966 tea occupied 1,644 acres. The rate of development has been very rapid and it is generally believed that it is one of the most extensive tea planting programmes ever undertaken under single management, although it is only fair to record that other estates of Agricultural Enterprises Ltd. have successfully completed similar expansion in other parts of Uganda.

In addition to providing plants for its own development — and 3,500 are needed for every acre planted — Bugambe Estate has been responsible for growing tea stumps for the Banyoro outgrowers who are gradually establishing their own plots of tea within a few miles of the factory. To produce such quantities of

planting material, as much as 50 acres of land at a time has had to be devoted to nurseries.

The tea factory was originally planned for 1965 but the tea reached maturity sooner than was expected and construction was brought forward. It was officially opened in September 1964 by His Highness the Omukama of Bunyoro. In line with the swift maturity of the bushes, crop yields have been most satisfactorily abundant and it is expected that some fields will have provided 2,000 lbs. of made tea per acre for the year 1966. Today Bugambe employs one expatriate as group manager and some 100 African staff including divisional managers, assistant managers, tea makers, personnel officer, drivers, clerks and artisans of almost every category, as well as 1,300 field labourers. Development has been along the most modern lines employing heavy crawler tractors to flatten the elephant grass and clear the bush. A particular success has been the Howard "R" type Rotavator, which mounted behind a Ferguson tractor reduces the tall elephant grass to a tilth suitable for immediate planting in a single operation. After the initial clearing, contour terraces spaced at a vertical interval dictated by percentage slope of the land are constructed by tractor and grader. These fall at the rate of 60" per 100 feet into storm drains and have the double object of preventing the soil erosion caused by uncontrolled torrents scouring out their own paths through the cultivated soil, and of allowing the rain water only to decant itself slowly from the land, while permitting the maximum soakage into the surrounding tea.

In place of the old laborious practice of digging a separate hole for each of the 3,500 tea plants in every acre, 20" deep lines are cut on the contour parallel to the terraces, using a tractor with a sub-soiling blade mounted on a tool bar. Apart from in the very youngest tea, cultivation by hoe has been eliminated and after the first year weed control is achieved solely by chemical spray, which is not only more effective than ordinary weeding, but also cheaper. Although the tea plant usually puts down one deep tap root, it is mainly a surface feeder and once manual or hoe cultivation is abandoned a dense mat of fibrous roots becomes apparent on and just under the surface of the soil. Under manual cultivation conditions this surface root growth was never allowed to develop, as the operation of hoeing away of the weeds also chopped away these roots. Thus under herbicidal spraying, weed control is complete and the artificial fertilisers which are added annually are fully available to the tea plant and not partially absorbed by the weeds. Additionally, the surface growth of the roots serves to hold the soil together and is a further precaution against soil erosion.

Following modern practice in the African tea industry, shade trees have not been planted, but wind-break belts are grown across the prevailing wind direction, with the object of reducing its velocity and evaporation effects across the surface of the tea. To get the leaf to the factory quickly fields must be interspersed with frequent roads, which are constructed on the contour wherever possible. There are 50 miles of road on the estate, which also has its own airstrip. The processed tea is sent by road to Kampala, from where it is railed to Mombasa for export overseas.

Tea provides one of the best opportunities for expanding the exports of Uganda, and the crop is of rapidly growing importance. The Bugambe estate is making a substantial contribution to this expansion and bringing a new source of income to one of the less developed parts of the country.

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