GRAZING INDUSTRY — PAPUA AND NEW GUINEA.

(Following is the text of a statement released by the Department of Territories in mid 1952).

Introduction.

The extensive grasslands of Papua and New Guinea offer great scope for the development of a grazing industry. There are areas in both Territories which are eminently suited to sheep and cattle raising. Though there were about 27,000 head of cattle in the Territory before the war, there were few, if any, sheep. Cattle in the Territory now number about 5,000 head and sheep about 1,600 head. Although only a few ventures in cattle raising on a comparatively small scale have so far been undertaken in Papua and New Guinea there do not appear to be any insuperable obstacles to the expansion of the grazing industry.

About 2.8 million lbs. of fresh meat and 6·4 million lbs. of preserved meat are imported annually into Papua and New Guinea. Production of meat in the Territory could aim at least at the present levels of imports of about 10 million lbs. per annum. The Government will do everything possible to encourage the expansion of the grazing industry in the Territory to at least this level and will provide technical services.

Sheep.

Most of the sheep now in the Territory are Romney Marsh sheep located at Nondugl in the Highlands of New Guinea. This breed has been tried in various parts of the Territory. It produces a good carcase and, in drier parts, a useful fleece. There are also some Asiatic sheep and, crossed with Romney Marsh, they produce good carcases and are hardy. Current investigations on sheep raising include tests and observations to determine the most suitable breeds and areas for grazing for both mutton and wool.

Cattle.

A number of British breeds of cattle are represented in Territory herds. For dairying, Jersey and Australian Illawarra Shorthorns are most popular, while Black Poll, Polled and horned Shorthorns are represented for meat production. These breeds have done well in the Territory under good management. Arrangements are in course for the introduction of Zebu breeding stock to provide the basis of experiments in conjunction with C.S. and I.R.O. into the possibility of developing, by crossing British and Zebu blood, a breed which will combine the good beef producing qualities of British breeds with the hardiness of Zebu cattle. Such a breed would be eminently suited to conditions in Papua and New Guinea.

Methods of Stock Management.

Specialist opinion favours the view that for a number of reasons the Territory lends itself to cattle raising by farm methods in preference to "open range" holdings. The main reasons for this view are:

(a) Large tracts of land with good communications are not generally available;

(b) Cattle, particularly those of the Zebu strain, are more easily marketed in prime and fat condition if raised under farm methods;

(c) In most of the potential grazing areas there is adequate rainfall to permit heavier carrying and better pasture management than is practical in such areas as the Northern Territory;

(d) Since the importation of foundation stock is relatively expensive, it would probably be uneconomic not to give them the care associated

with intensive rather than extensive management, particularly in the matter of disease control.

Nevertheless, there are areas of grassland, for instance, in the Central District of Papua and the Sepik District of New Guinea, where open range grazing might be undertaken, though it seems that even there, in the long run, there would develop a trend from open range management towards stock farming.

Carrying Capacity of Land.

Under intensive management, including fodder production and control of internal parasites, probably one beast to the acre could be carried in many parts of the Territory.

Diseases.

The livestock of the Territory are, even by standards in Australia, remarkably free from serious disease. None of the serious diseases of Asia, such as foot and mouth disease and rinderpest, are present—nor is contagious bovine pleuropneumonia. Anthrax is endemic in the highlands, but is easily controlled by use of vaccine manufactured in Australia. It is expected within a few years the Territory will be free from cattle tick, and even now it is practicable to eradicate tick on a herd basis and to keep new herds free from infestation. Buffalo fly are present, but are not a great source of trouble. There is a bad screw-worm fly in parts which is troublesome to wounds and the navels of calves. Conditions favour development of internal parasites in parts of the Territory; in areas which have a definite dry season they are likely to be of least consequence. If care is taken at importation, the building of contagious abortion-free and tuberculosis-free herds is quite practicable, and an aspect of great economic value.

Water.

Even in areas where there is a long dry season, usually permanent surface water is available. Generally speaking, it is not difficult to obtain sufficient head of water for the operation of hydraulic rams. There is scope for development of hydro-electric power.

Types of Feed—Grasses, Edible Shrubs and Trees.

The grasslands of the Territory apparently are artificial products of the native method of hunting which involves burning whenever there is a dry season.

In lowland areas and on the lower slopes the dominant association of these grasslands is a mixture containing **Imperata cylindrica** (the grass known in Malaya as "Lalang," in the Philippines as "Cogon," and in New Guinea as "Kunai" or "Kurra Kurra"), **Coelorrachis rotboellioides**, and **Saccharum spontaneum**, the dominance of any one of the three varying with local environmental variations. Though palatable immediately after cutting and burning, this type of sward is a very fibrous and poor feed. On light sandy soils and well-drained slope areas **Themeda australis** dominates, and provides open range type grazing but such a sward has a low carrying capacity and poor resistance to intensive use.

On level land at 5,000 feet altitude and above **Themeda gigantea** dominates. This is fibrous and of poor value. With judiciously controlled burning and some preliminary weeding, a palatable and nutritious sward of native fine grasses, principally **Poa spp.**, **Sorghum nitidum**, and **Apluda mutica** can be induced. These grasses are very sparse in the original sward.

In country with rainfall above 100 inches and a poorly marked dry season, clearing gives a sward of soft grasses in which **Paspalum spp.** (particularly **P. conjugatum)** predominates. Although this sward gives a fine bulk of palatable green feed, it is nutritionally inadequate without a legume

or cereal supplement. A number of useful legumes which have been introduced as plantation cover crops are available to introduce to this type of sward, notably **Pueraria spp.**, and **Centrosema spp.** Valuable introduced grasses thrive under these conditions; for example, Para grass **(Brachiarya mutica)**, which is outstanding. **Paspalum scrobiculatum, Axonopus compresus,** and **Digitaria spp.** Among cultivated fodders for these conditions Pigeon Pea or Dahl **(Cajanus indicus)**, grain and Sweet Sorghums, Sugar Cane, Cowpea **(Vigna catjang)**, and Peanuts **(Arachis hypogea)** are outstanding; maize tends to be subject to excessive insect damage. Supplementary feeding and foraging with root and vine crops such as Sweet Potato **(Ipomoea batatas)**, Tapioca **(Manihot esculenta)**, Pumpkins and melons **(Cucurbitaceae)**, Mauritius bean **(Stizolobium spp.)** and Kangu **(Ipomea aquatica)** is readily available.

In areas with a more marked dry season, Guinea grass **(Panicum maximum)**, Elephant or Napier grass **(Pennisetum pupureum)**, and **Stylosanthes spp.** are most useful introduced fodders; certain potential fodders such as **Leucaena glauca,** the rain tree **(Pithecolobium saman)** and Algoroba (**Prosopis juliflora)** can be readily grown. There is a need for storable cereals and pulses in such areas and Maize, Grain Sorghum, Peanuts and Pigeon Pea are of importance.

At higher altitudes certain temperate and sub-tropical grasses and pasture legumes can be established. Notable among these are:

Grasses: Perennial Rye **(Lolium perenne)**, **Phalaris tuberosa, Paspalum dilatatum,** and Rhodes Grass **(Chloris gayana)**, with Kikuya **(Pennisetum clandestinum)** giving good grazing cover on hungrier soils.

Legumes: White Dutch **(Trifolium repens)**, Alsike **(T. hybridum)** and Red **(T. pratense)** clovers; **Lotus spp.**, which seem to be better adapted to the rather generally acid soil conditions; and Lucerne **(Medicago sativa)** which is limited rather strictly by soil pH.

An important recent introduction which shows promise under a wide range of ecological conditions is Berseem or Egyptian clover **(Trifolium alexandrinum).**

Generally the Territory must develop pasture types and grazing and feeding patterns following more closely those of tropical countries than those of Australia.