seek their advice. The Tinnevelly ryot has learnt more in the past five years than he did in the previous fifty. He is beginning to realise that there is no longer any necessity for him to remain the dupe of the middleman. His main source of subsistence is cotton, and by marketing his cotton direct to the purchasing firm he is realising that he may now reap profits which were hitherto the exclusive privilege and the happy hunting ground of the cotton dealer.

R. Thomas.

A note on the preparation of Crude nitre in villages round Coimbatore.

The manufacture of Nitre in India is an old industry. Though it is mostly carried on in parts of Upper India (Bihar and the United Provinces) yet it is not uncommon in the South. In many villages in and round Coimbatore its manufacture is quite a common thing. Enquiry shows that it was once the culinary salt of the people. That the people were acquainted with its preparation long ago is proved by the record by Buchanan of the fact that "In Tippu's reign, the makers of salt-petre received advances from the Government and prepared the salt-petre from the earth."

The source of this salt is the "Salt Earth" (*Tamil* uppu mannu). The wet dirty brown appearance in the morning is a characteristic indication of its presence. Lanes, *itteries*, dilapidated houses, neglected corners, stalls, mud walls and pials of villages are mostly the places where this earth is seen accumulating. It is, however a little different from the "Village Earth" or "Patimannu" used in the circars for paddy and sugarcane, for it contains little or no phosphoric acid. The occurence of this salt in the soil is due to the decomposition of the solid and liquid excreta of cattle and man and other vegetable matter. The decomposition is brought about by two sets of Bacteria—the putrifying bacteria and the nitrifying bacteria. The former

liberate the ammonia and the latter oxidise the ammonia, first into nitrous and then to nitric acid and then combine with the saline bases in the soil.

The preparation of this salt consists in lixiviating the earth over a bed of wood ashes and allowing the extract to crystallise after evaporation. In Vadavalli and Papanaickenpalayam villages of this district this manufacture is carried on by a class of men known as Naiks. The "salt earth" is carefully scraped from the places mentioned above and accumulated near their "laboratory." It is then extracted with water over a bed of ashes. The apparatus concerned is simple and economical. A circular pit about 5 feet in diameter and 3 feet high is made on the margin of a raised ground, and plastered inside with fine clay and is provided with an outlet at the bottom. This serves as a funnel. A large earthern pot buried in the ground with its mouth below the outlet of the funnel, catches the filtrate.

A layer of sand or small *kankar* stones is spread over the bottom of the funnel to facilitate draining. Rice-husk is sometimes used. Above this comes a layer of wood ashes. It is this ash that supplies most of the potash in the salt. The manufacturers hold that the ashes got from Coconut or Palmyra topes where those leaves are used as fuel in the manufacture of jaggery, give them a better yield. On the top of this ash, the earth is heaped almost to the full in the pit. Usually a definite quantity of earth (30 baskets) is put in and a definite quantity of water (20 pot fulls) is poured on it gradually. This gives 6 pot fulls of the extract of which the first 5 pot fulls are used for boiling and the 6th is poured on the fresh earth which is to come for the next charge and not used for boiling, as it contains only a little of the salt.

The boiling is done in a shallow iron vessel (about 3 feet in diameter and 6 feet deep at the centre). Evaporation goes on

until the liquid becomes super-saturated. This they test by dipping a rod into the solution and drawing it out into the air when it suddenly cools out and crystallises. At this stage the vessel is removed from the fire and allowed to cool. Crystals of crude nitre separate out and these are taken off the vessel. As boiling goes on some impurities come to the surface in the shape of scum and froth, and these are constantly removed. The salt at this stage however is not quite pure. It is a bit yellowish in colour. Refining is done in factories.

Usually four people join together in this preparation. They may be either partners or coolies under a license holder. If they are partners with the license holder the total amount realized is divided into two portions one of which goes to the license holder and the other to the other three partners. If they are coolies usually a man and theree women are employed and the man gets about 8 as. and the woman 3 as. each per day. They can take only one charge in a day. A charge gives on the average one maund of the salt which fetches about Re. 1—8—0. The yield at the commencement of the season is greater and it diminishes gradually because the "salt earth" which is rich in salt is exhausted. By examining a bit of the earth the Naiks can tell whether it would pay to work with it. This work is carried on during the dry whether (usually between December and April) as during the rains the salt is washed and no "salt-earth" formation occurs. From the agriculturist's point of view it is easy to realize that the crude nitre is one of the most useful substances. The rapidity and ease with which it parts with its Oxygen when heated makes it a useful constituent of gunpowder (which is a mixture of Sulphur, Charcoal and Nitre)—and the value of gunpowder the ryots readily appreciate. As a cheap drug it is invaluable. If your working animal or the milch cow is feverish, dull or uneasy, give it at once a bucket of nitrated water and spare your worry and the doctor's bill or if your fodder cholam

be troubled by *Hariali* from under the ground, raise him up by a top dressing of nitre. If it is your desire that your cigar should burn well and steadily leaving a silvery stick of ash, don't fail to give your tobacco crop a doze of nitre- Perhaps you desire to grow such good English vegetables as cabbage, cauliflower, turnip, etc., then make it a rule to feed them with nitre. In short, if you suspect any of your crops not up to your expectations, give a stimulant dose of nitre and you and they will look cheerful in a few days.

It is however a pity that the value of such a Talisman is not fully recognised by the majority of the ryots. They recognise the efficacy of cattle manure, sheep's dung and poudrette, but have a lamentable lack of understanding with regard to the value of the essential product in these.

It is the want of understanding of the value of this earth on the part of the farmer that tempts the village manufacturer to rob his stalls, and walls of such an important manure and prepare the salt for a foreign market. For, India exports as much as 20,000 tons of refined nitre to foreign countries. Imagine the consequences of this incredible thoughtlessness! The writer strongly feels that any effort which aims at inducing the ryot to make a systematic use of his "salt earth," directly contributes to his prosperity.

V. Ramachandra Ayyar.
Student Class III.

Notes.

Fish Manure :—There are one or two points of interest regarding this fish manure industry which are worth recording. Fish manure consists of beach dried sardines from which no oil has been extracted. The sardines are dried on the bare sand, and on exposure to the sun's heat an appreciable quantity of oil exudes.