

women, though chiefly by men on account of the inconvenience caused by the deep water, and mud to women who cannot tuck up their skirts as men do and have not yet learned to wear trousers. Usually three or four work together and one goes ahead to slash away with a dah on a long handle the grass which has grown up since ploughing. In a few parts where the land is comparatively high the plants are put in by hand, but the general practice is to use the forked stick (*kauk-sark-gwa*) partly because of the depth of water which would make the work so slow by hand, partly because of the heavy rough roots and stems of grass which would both obstruct the work and make the fingers sore. The fork is made of an iron tube about eight inches long and one inch diameter fitted at one end to a wooden rod four feet long and at the other end flattened out into four rectangular teeth about a quarter inch long and half as wide and with spaces of a quarter of an inch. Usually two to four plants are put in together, but four is considered too many as a rule except in some stiff soils. The spacing is described as so many plants to a *four-cubi* (six feet) fathom, counting the plants at both ends of the fathom so that at a foot apart seven plantings go to the fathom. Rich new land is planted widely, four or even three to the fathom, to allow room for tillering; as the land gets older the planting gets closer so that six to the fathom is usual in first-class soils of the best tracts and at Mankale in Tract 11W eight is usual. Similarly on high second-class soil ten may be reached, but in the more common low lying second-class soils the usual spacing is five, the same as in first-class or a trifle wider. In many places planting is sparser than is thought suitable to the soil and water because close planting encourages rats. Moreover much of the planting is done by labour hired by the area planted and spaces are consequently often made wider than the cultivator intends. The spacing in fact did not prove a very useful criterion in soil-classification except when it was unusually narrow; and it could generally give no help in comparing different *kwins* for tracting. Usually the seedlings are approximately a month old when transplanted; older plants up to two months are used where water is deep, but these do not tiller well, and often do not tiller at all. Younger seedlings cannot be used because of their tenderness, but some cultivators to whom it was suggested, thought of trying the Philippine method of sowing on plantain leaves so that transplants could be obtained earlier and get established before the floods come. The bundles of seedlings brought to the planting field are sometimes allowed to stand a day or more waiting to be planted; but there are no ideas current on this point. When planting it is usual to break off the upper half of the leaves; in high land this helps the plants to get established by reducing transpiration, and in low land it prevents the long leaves hanging bedraggled in the water and perhaps pulling the plant over through the pull upon them of the current.

124. The hire for uprooting seedlings from the nursery is reckoned in terms of bundles of seedlings which vary in size. The rate for an ordinary healthy worker is equal to about one rupee per day; no food is given in addition. For planting the rate is usually Rs. 6 and no food for a plot measuring forty fathoms square, that is, 1.32 acres.

125. After planting the fields the cultivator commonly has a little time for the resting of himself and his cattle. He has still to cut grass for oxen in the parts where water is too deep for them to graze but under these conditions he more often keeps this. In badly flooded parts he may have to patch damaged fields with extra transplants, and in all parts a little attention is required for adjusting the buffaloes and only employs oxen because some other consideration outweighs depth of water in those fields which are not flooded. A journey to get firewood may be made; some time may be spent in fishing to eke out the dwindling stock of food and some more time may be spent in seeking a creditor for a loan to cover expenses for the remainder of the season. Soon the ears begin to form and the bamboo stages must be built in the fields on which the cultivator or his children may stand while frightening away the sparrows from the grain. By the beginning of December in the early parts, and of January in the later, reaping begins.

126. Reaping is undertaken on the same lines as ploughing and planting by the cultivator and his family and a few labourers hired by the season or by the plot of 1.32 acres.

Reaping

The women of the family generally take an active part in reaping and women are occasionally hired. Except just on the edge of the Bassein and Pyapôn Districts there are no large groups of Indian reapers as in Bassein and Hanthawaddy, the work is completed by a few people in each holding. This fits in with the different times of ripening at different levels of the holding in some cases; in others the kind of paddy has to be selected so that reaping can proceed slowly without harm. Thus the reaping of a holding may occupy four to six or eight weeks, proceeding continuously all that time. If extra hands are hired to assist the usual rate is Rs. 6 per 1.32 acres. For a man hired by the harvest season to do all kinds of work from reaping up to the final measuring of the grain the usual rate is about 40 baskets, the labourer being fed with the family in the same way as the ploughman is fed. Owing to the chafing otherwise received from strong straw produced by the plants in the heavily watered fields it is common for reapers to wear a garter on the left leg. Women who reap often wear calico garters reaching from the knee to the ankle on both legs as a protection against mosquitoes, in some parts reaping in the afternoon is impossible because these insects bite so badly as soon as the sun begins to decline.

127. There is no market for straw in the district except on a very trifling scale

Stubble.

on the edge of each town; no particular attention is given therefore to stubble. As soon as the harvest is fairly advanced and there is no difficulty in keeping them away from the grain cattle are allowed to graze freely on any land without distinction of ownership. Later about March or April if the land is out of reach of tides and gets dry on the surface the stubble is usually fired; but this is not possible in the greater part of the land.

128. In the low-lying fields which are subject to inundation by the tides the

Collection of Sheaves.

sheaves are generally laid by the reapers in a row across the bunds; or, if those are not high enough to keep them above the tide, are carried to the nearest high field or bund and laid there till a rest from reaping frees labour to carry them to the threshing-floor. Where there is no danger of inundation the sheaves are left on the ground in the rows in which they were formed. No attempt is made in most parts to make any stages on which to lay the sheaves out of reach of the water, and frequently loss results; indeed in soil-classification it was found that the entry of water into the fields at reaping-time was considered by the cultivators as one of the most serious defects. But at Yingan and at Theinhla, a few miles south of Myaungmya, a small stage a cubit high is always made with thin bamboos or canes or reeds cut near by for each sheaf in the low fields; each of these localities has its own pattern of stage, but both lay the ears on the stage as reaped and then tie up the sheaf and leave it there to cure out of reach of the tidal inundations. Transport of sheaves to the threshing-floor may be by portage or by cart, and two sizes of sheaves are recognised by reapers accordingly. The sheaves carried by men (*lu-dan kaukhlaing*) yield about one-fourth or one-fifth of a basket of paddy, but those taken by cart (*hlè-do*) are only half as large because they have to be thrown up into the carts. On arrival at the threshing-floor the sheaves may be laid out at once for threshing, but generally the floor is not yet ready and they are placed in vertical stacks with heads towards the threshing-floor or in rows laid obliquely with head downwards and protected from the sun by being overlapped by the next row. No rule is observed, as in America for the orientation of the stacks or rows with a view to protection from cracking of the grain by the sun. Neither is anything done to protect from rain. No arrangement is made as a rule for curing the heads of grain because the interval between the reaping and threshing of any sheaf which is necessitated by the conditions of labour supply is more than sufficient for that purpose. But sometimes the sheaves must be taken from the fields wet with rain or tide-water, or must be collected particularly early because the day of a spring tide is approaching; they

are then usually united and spread out thinly to dry on the threshing-floor for two days before stacking; during the drying they are turned over once at the end of the first day.

129. The normal method of threshing in use is treading by cattle. The first step is the preparation of a threshing-floor. In selecting a site for this regard must be paid to the convenience of proximity to the cultivator's hut and to a place where barges can be loaded and also to the level. The floor must be high enough to be out of danger of flooding by the tides; and in some parts must be built up higher for this reason, or a field must be borrowed from a neighbour who in such cases lends it free of charge. Ordinarily the surface is carefully cleared of grass and stubble and hollow places are filled with mud; if the surface is very uneven it may be well softened with water and harrowed and rolled till it is level, extra mud being added where needed to expedite this result. After drying for two or three days a smooth hard surface is obtained, small hollows and cracks being filled with a preparation of cattle-dung and rice-water. For small floors, and where the soil cracks too much in drying, the whole surface is made with a layer of this mixture. In laying the sheaves for threshing a line is first laid in the form of a rectangle with the ears pointing inwards; then a second line inside that and leaning upon it with heads upwards and successive layers in the same way till the rectangle is filled.

130. As threshing advances a portion of the sheaves have to be taken up each day and relaid in order to secure complete threshing. This is generally done in the mornings at about eight or nine o'clock when the cattle have been put out to graze. Threshing is done from 6 p.m. to midnight, being best done at night when the straw damped by the dew breaks less and makes less dust which would otherwise rise in the air and tire men and cattle. It is also said that the treading is less effective mechanically in loosening the grain when the straw is very dry. The cattle would be tired too by the mere heat of the day; and further it is more convenient to have them under one's eye at night, especially when there is so much new grain about. New paddy is very harmful to them and death is a common result if they break into it and eat to excess. For this reason, too, both oxen and buffaloes are muzzled when threshing if they are inclined to eat the paddy, the Mosaic injunction being followed for the majority who have no such inclination. Straw is burned on the threshing-floor as an illuminant for the night-work, and this practice has its use also in reducing harbourage for rats. In the higher parts of Wakèma Township and in the greater part of Myaungmya Township threshing is completed in January, but the date gets steadily later towards the south and at Kanbè and Hlaingbôn threshing is not finished till March. No time is wasted because on the one hand money is wanted and creditors and landlords press, and on the other hand the paddy shrinks in bulk in drying and, if very dry, is liable to crack in the threshing. For shrinkage of sale-paddy there is compensation in rise of specific gravity, but cracking causes a reduction of price; while for payment of rent and cultivation expenses bulk alone is to be considered. Threshers by the job or by piece-work also want to finish as soon as possible so that they can go and earn more elsewhere by prawn-fishing, jungle-cutting and other miscellaneous occupations. Women are never hired for threshing, but the women of the cultivator's family often do their share both in driving the cattle and in collecting the grain.

131. The provision of paddy for home consumption rarely lasts until the next harvest is completed, and generally as reaping time approaches must be eked out with great care or supplemented by purchases. Sometimes a small patch of forward plants is reaped before any other and threshed by hand to keep things going. Sometimes indeed selected ears of grain which have ripened in advance of others are collected for this purpose. Where suitable land is included in the holding a patch of *kaukhnyin* or *ngasein* paddy is often planted for feeding the cultivator in this way before the main crop is ripe, but the physical conditions do not always permit this, and some prefer to confine their crop to *kaukgyi* and borrow to meet

such early needs. As the grain reaped for such special needs forms too small a bulk to be threshed in the ordinary way it is beaten out with a stick after being trodden by men. The same method is used for threshing the ears reserved for seed, because the normal method of treading by cattle injures the germ cells. In this method one sheaf is beaten or trodden at a time, usually on a bamboo mat; and sometimes the beating is dispensed with, and the whole process completed by treading. Grasping a post or a neighbouring worker to secure his balance, and generally emitting a succession of loud noises in the manner so inefficiently rendered in English as singing a *pwè* song, the treader rubs and twists and rolls the sheaf until not a single developed grain remains on the ears. Women and children do the beating as a rule, using any odd bamboo or straight stick about two feet long which suits their fancy or is discovered without any troublesome search; nothing in the nature of a flail is known. Men occasionally condescend to use this method, but women never tread the sheaves; occasionally the women thresh completely by beating. Beating and treading was the method used by the settlement party when measuring the crops of selected fields to check the assumptions made for outturns in Chapter X of this report.

132 When threshing is complete the grain is swept up and winnowed. Small harvests are winnowed by women allowing the grain to fall slowly from a rimmed tray (*saga*) held in the hand

Winnowing.

as high as can be reached. Larger harvests are hauled up in basketfuls, often with a pulley to a small stage (*in*) supported by bamboos about twelve or fifteen feet from the ground, the grain being then allowed to fall through the floor of bamboo laths on which the operator stands. The quality of the winnowing varies greatly. In some places the broker must have the grain fanned as it falls into the measuring basket when he buys it, in others it is winnowed very thoroughly. Karens are said to winnow better than Burmans, and certainly the Karens along the Pulu *chaung* winnow very thoroughly and gets Rs. 4 per 100 baskets better price than others for a similar grain. Tenants who have to use all their harvest in payments in kind for hire of land, cattle, labour or debts naturally winnow as badly as the creditor will accept; brokers in many places make a recognised reduction of price for paddy obtained as rent on account of its inferior winnowing.

133 Although no care is taken to protect the ears from the sun before threshing, the heaps of winnowed grain are often covered with straw to prevent cracking by the heat, and in 1918, when rain at harvest time postponed winnowing until the heat of March and April and the market was unfavourable, the majority of the cultivators took this precaution.

134 Betel gardens are commonly manured with the leaves of the *sit* (*Albizzia procera*) and *kyi* (*Barringtonia*) trees; but betel cultivation is a trifling and unimportant matter in this

Manure.

district. Nothing but cattle manure is used for any other cultivation. Some of the miscellaneous market-garden cultivation on the high ground behind Myaungmya is fertilised with cattle-manure, but only a little is available as stock-farming is unknown and the gardeners commonly have no cattle. In a few of the drier places paddy nurseries are given a little cattle-manure, but the use of this for paddy lands otherwise than in the nurseries is almost confined to the western and central parts of Myaungmya Township. Even there no general custom of using manure prevails; but in the higher patches and other places where the soil has been "exhausted" (i.e. brought down to its asymptote) by long cultivation cattle-dung is applied to the paddy nurseries, a little being applied also to some of the ordinary fields when there is enough available for this purpose. The custom is followed by Burmans and Karens as well as Indians, but chiefly by the last, and in the *kwins* quite close to Myaungmya Town it appears to be practically confined to Indians. But here and there in the *Kwelè* surveyor's charge a little manure is given even to broadcasted fields. There are a few places in the same parts in which since about 1905 there has been a practice of tying up cattle in a particular field instead of letting them wander at will as is generally done. A variant of this is found in holdings quite close to a grazing-ground where the owners of paddy

land give a tip of Rs. 3 to Rs. 10 or of five to ten baskets of paddy to a herdsman in the grazing ground to bring the cattle in his charge every night throughout the hot season to sleep in some part of a particular holding; owners who let such holdings recoup more than this expenditure by adding about one basket of paddy per acre to the rent.

135. In spite of Jethro Tull's well-known aphorism that *Cultivation is manuring* it would be wrong to suppose that the neglect of manure when growing paddy in wet fields is universally a mistake. The neglect is not confined to tenants of insecure tenure who have little inducement to improve the land, but extends to all classes and races. There are many places where near the village, in the fields in which the cattle most frequently graze, the paddy has a luxuriant growth of stalk and leaves but either produces little seed or leans over so much when the ears form that its seed hangs in the water; and it appears to be generally true that the addition of organic manure to the water-logged and imperfectly aerated soils of this district would cause a reduction in the yield of grain. The cultivators generally are aware of this, but their imperfect analysis leads them to the erroneous conclusion that it would always be wrong for them to apply manure. The conclusion is erroneous because in many kwins there is some higher land that would profit by the application of manure; and the owners of this land would probably be able if they arranged for its conservation to get enough manure for their purpose from their neighbours who, as they work the wetter lands, have no use for it. But as the manure-needing area is a comparatively small fraction of the whole, custom has only provided a method for cultivating the other lands; and accordingly there is no attempt made as a rule to conserve such manure as is available. Patient collection throughout the year is quite feasible even when cattle are herded in a grazing ground; but it is not a procedure which appeals to the Burman mind, and even in those higher parts of Myaungmya Township in which manure is used and a larger supply is desired, there is no proper conservation. Even with careful conservation the amount available for the manuring of the transplanted fields would be small, because the five and a half tons of manure produced in a year by the average yoke of cattle yields only fifty-five pounds of nitrogen, which barely suffice for the proper manuring of only two acres of land. The cultivators of the higher lands in the manure-using tracts have therefore been compelled to decide upon how to use most effectively a quantity of manure certainly insufficient for the whole holding, and they have adopted the system of concentrating upon the nursery. In the wetter parts, however, the manuring of nurseries is considered to be an even greater mistake than the manuring of the planted fields. It is believed that manured nurseries are more liable to attack by insects (though this might be due sometimes to using imperfectly rotted manure), and, even more important, their plants get very tall and suffer a severe shock upon transplanting into the open fields of poorer soil, where also, losing the mutual support received in the close growth of the nursery, such tall plants are apt to lean over and drag in the water.

136 The silt received from the influx of the tides in the greater part of the area must not be overlooked in this connection as, owing to the hardening of the soil as the original organic content is reduced, many of the cultivators are inclined to do. In the terms of paragraph 101 the asymptote for land in the first-class of every tract is undoubtedly lifted to a generally higher level by the tides, and it is possible that much of the land does receive as much fertiliser in this way as it can have with advantage in the present state of knowledge of paddy cultivation.

137 Those higher paddy lands in the west and south of Myaungmya Township, where the soil is particularly stiff and sterile and manure is sufficient only for the nursery, practise a regular system of fallowing, especially in the areas designated as Tracts 8B, 8C, 26 and 27 in Map III. The regular practice here is to fallow high second-class land for one or two years after cultivating it for five or six, while third-class fields are only worked two, three or four years and then fallowed for three or four, the fallow years sometimes outnumbering the cultivated. No question of depreciation of

these soils is involved; their fertility remains on the average at the level of the asymptote; but by concentrating the production of a series of years into fewer seasons the cost of cultivation is reduced and the net produce for the whole series of years is therefore greater than if the soils were kept at a low uniform level of fertility without fallowing. It is possible that the temporary increase in fertility derived from the fallowing is a necessary condition for the success of the system of manuring nurseries and therefore enables better transplants to be used than would succeed if the soil were kept at the low uniform level, and in this indirect manner the gross produce of the series of years may be somewhat enhanced, though even this is doubtful. The fallowing of second and third-class land often involves the fallowing of better land because the extent or distribution of the classes in the holding is such that the balance cannot be worked profitably. Sometimes in extensive holdings parts are fallowed in rotation, sometimes a compromise must be made and the whole fallowed every four years or so.

138. In the remainder of the settlement area the fallowing is a matter either of floods or of cattle disease or of the health and domestic circumstances of the cultivator. The area left fallow for lack of a tenant is negligible; generally where this reason is alleged it is found that the land lies in the sterile tracts already discussed and tenants refuse to work it because its period of fallowing is due. The fallowed area is probably distinctly larger than that shown in Statement 2 at the end of this report because the revenue surveyors were found by the settlement party to leave many fallow fields unmarked on their maps; some figures relating to this will be supplied in Chapter V.

139. The consumption of small quantities of paddy reaped before the main harvest has already been noted in connection with the *Disposal of the Paddy Harvest*. reaping and threshing operations. In the same way, as soon as threshing proper has begun small quantities of grain are taken for immediate consumption as rice or as other food for which they are exchanged. Frequently, too, some members of the family discover that their clothes are rather shabby about this time and become impatient to replace them, to be quite just, however, it must be said that this is not usually a sign of improvidence but the reverse, because the improvident would have bought earlier on long credit and only the provident patch up old clothes so long. Apart from these small leakages the first payment made from the harvest is invariably the rent. If the landlord is not on the spot ready to receive it the rent must be set aside; but this contingency rarely arises. Out of the balance which remains after the rent has been paid the first charge is for labour and cattle, which are paid in full if there is enough and share proportionately if there is not. Then comes payment of debts including debts to the landlord who has already taken rent as a first charge, and whether these are actually paid or not depends upon what balance will still remain and the circumstances, temperaments and reputations of the parties. If, after paying debts in kind or allowing for the quantity of paddy which must be sold to pay them in cash, there is a balance, a portion called *wunsa* will be set aside for consumption at home until next harvest approaches, and the remainder will be sold. The *wunsa* portion probably consists of *ngakywè* or some other kind of *kaukyi* or of *ngaseimbilu* which eat softly, an eye to this having been had in selecting varieties for sowing. If the provision of sufficient *wunsa* would leave too little to realise by sale enough to meet the cash expenses of living these may be met by borrowing; or a compromise may be made by reducing the *wunsa* and selling enough for present needs and leaving the dim future to the future. Commonly *wunsa* and cash proceeds are used up together about October; at that time there is a whole holding completely ploughed and planted and consequently credit by which loans on *sabape* can be taken; then the same programme will probably be repeated annually. Large numbers of tenants rely upon the landlord for advances of *wunsa* in May before they begin to cultivate; in their case practically the whole of the harvest is used to settle accounts, the balance never being more than enough to support them from harvest till May and frequently not sufficient even for that without other employment being taken up in the hot weather. The paddy received by landlords though paid first is of the cheaper

varieties amongst those grown, but I have not heard of any cases of a *kaukgyi* harvest being sold and cheap badly-threshed *ngasein* paddy bought to make the payments. In some written contracts of tenancy this is forbidden and probably it would be regarded as a breach of contract in other cases too. Labourers sometimes take as paddy any wages in kind still due to them at harvest ; but ploughmen have generally taken all and threshers a part of their wages as cash advances before that so that the second claimant on the harvest may be said to be the cattle-owner. Sometimes, if there is a balance of wages due, labourers take its cash value at the price at which the employer sells. Landlords and money-lenders commonly store the paddy they receive to sell during the rains when the price has risen. A few of the less indigent cultivators have also begun to hold up their paddy for sale later on, even borrowing to meet their expenses in the meantime ; but the majority sell immediately after harvest, usually from threshing-floor. They accordingly sell chiefly in February and the first half of March, but in a few wet parts towards the south, where the harvest is later, they sell in April. *Kaukhnyin* paddy is practically never sold except in petty lots of a pint or so to non-agriculturists who wish to make sweetmeats to offer to the priests ; the *kaukhnyin* rice used for making sweetmeats in the bazaars of the towns appears to be imported. Most of the *kaukhnyin* produced appears indeed to be consumed during the reaping and threshing seasons. Where *ngakywè* paddy is sold it is only available in small quantities found to be in excess of home requirements, and it is generally sold locally in small parcels either for consumption in other local homes or for retail in the towns or for collection by small dealers specialising in this trade into larger parcels which can be sent to Yandoon for export to Upper Burma. Economically this trade is of no importance, and it is ignored in all that follows in this report. The other varieties, either separated into the *ngasein* and *kaukgyi* classes which are recognised by dealers (paragraph 90) or mixed to be *apyu* or *bawsein* according to the local custom and organisation, are eventually exported in the ways about to be described to Rangoon or Bassein. The whole of Wakèma and Mawlamyainggyun Townships export solely to Rangoon, and nearly all those parts of Labutta Township which are included in the present settlement do nearly the same ; the greater part of Myaungmya Township exports to Bassein. So far as the present settlement is concerned every part west of the Ywe River and a narrow strip immediately to the east of that river export to Bassein, but occasionally places on both banks of this river send also to Rangoon.

140. Local mills confine themselves now to milling rice for home consumption in small lots sent by one household or a few households jointly in the manner described in Chapter II, but they used formerly to buy paddy for milling and export the rice through Yandoon to Upper Burma. Some millers say this trade was stopped by war conditions - principally the contraction of credit by the Chetties ; but those only gave the final quietus to a trade already dying because on the one hand of the increase of paddy cultivation in Upper Burma, which is now more nearly able to meet the demand there for rice as an article of food, and on the other hand the growing fashion, now fully grown, of the local people to have their rice husked at the mill. One mill in Wakèma, not the largest, used to buy for the Upper Burma trade about forty or fifty thousand bags of paddy per annum, chiefly from March to October ; the same mill now husks about 300,000 baskets, or three times as much, for local consumers.

141. There are almost innumerable systems at work for the transfer of paddy from the threshing-floor to the wholesale market. The principal are as follow : (1) purchases by agents kept at local centres by Rangoon and Bassein millers ; (2) purchase by local men buying paddy and sending to Rangoon or Bassein at their own risk and profit, generally sending only to one miller and often taking advances of capital from him ; (3) purchase by merchants, commonly Chinamen, who live generally in Rangoon or Bassein and travel on barges in the season buying paddy where it suits them and conveying to a mill for sale ; (4) purchase by locally resident merchants or brokers who buy lots which are too small or isolated to attract other purchasers and have generally to be brought by small boats to some collecting centre accessible to large paddy

boats—these buyers may then sell to other dealers or send cargoes to the mill or store to do one or other of these or to sell by retail later; (5) purchase by locally resident speculators who store until the market rises; (6) collection by land-owners and money-lenders who receive payment of rent and debts—either as *sabape* or by taking paddy at the market-rate to settle a cash debt—and follow then methods (4) and (5), frequently practising those methods with additional paddy which they buy. The first method is of smaller importance than the others which all account for large quantities.

142. The transport to market is effected chiefly in sailing-barges carrying usually about 2,000 baskets but ranging from 1,500 to 2,500, the medium-sized having a crew of a steersman and seven others. In 1919, the last year of the settlement operations it was noticed that a considerable number of such barges had a Burmese crew; but usually the crew are Coringhis. All possible methods of hiring these boats are in use. There is the *nawali* custom by which the hirer pays a fixed inclusive rate per 100 baskets of paddy (with a minimum fixed by the nominal capacity of the boat); by another system boat and crew are hired at a fixed inclusive charge of Rs. 8 per day; by another boat and crew are hired at Rs. 80 to Rs. 100 per month or by the season, or the boat is hired and a crew found by the hirer. The *nawali* rate is about Rs. 8 per 100 baskets from Wakèma to Rangoon, and the saving by hiring boat and crew may amount to Rs. 3 or so. One merchant prefers to pay the higher rate to be free of trouble about boats and use his time and energy to do a larger business, another prefers to get an equal livelihood by making the maximum profit on a small business and accordingly adopts a different system. Frequently the large profit on a small turnover is dictated by local conditions such as smallness of supply. Carriage by flats towed by steamers is not used in the harvest season, the large cargoes required to fill these, and the demurrage charges, make them suitable only for dealers who have collected large quantities in godowns, and accordingly they are used only in the rains. Formerly a considerable number of cultivators took their own paddy in small boats to some local mill or centres where dealers bought it. Sometimes two or three joined together to fill a large sampan or a moderate-sized country-boat and sent their paddy to Bassein or even to Rangoon. A considerable part, too, seems to have been sent by the Irrawaddy Flotilla Company's flats towed by steamers, though unfortunately the previous settlement reports give no idea of its amount. All this has ceased with the organisation of the export trade to send in barges. Largely this is due to the extension of cultivation, which, by providing sufficient cargo within a small area, has made the system of larger boat and middleman more profitable. Partly it is due to the Twante Canal. Formerly the congestion in that made it a matter of considerable risk to send a cargo of paddy. Collision there often meant spreading out the paddy on the bank to dry, and sometimes the boat was spoiled as well as the paddy. It was then considered by many large dealers who could find cargoes large enough for flats cheaper to send by flat than by boat, the extra cost being regarded as insurance against the losses which made the smaller dealers retire from the trade. The improvement of the canal gave an added stimulus to the system of barges and large boats, which, having advantages in their intermediate size over both small boats and flats, have replaced both of them in the busy season and probably do the greater part of the transport in the rains too. This change of organisation has necessarily had a considerable effect upon local prices; the various changes which it represents have together reduced the cost of carriage from near Wakèma to Rangoon by about Rs. 7, and the effect of this change upon recorded local prices will prove in Chapter VIII to be one of the difficulties in determining the average local prices for the last twenty years which are required for calculating new assessment rates.

143. Corresponding to the various classes of wholesale traders are various methods of getting into touch with the cultivators and arranging a price, and these vary also with the locality.

Sampling and Payment. Where there is a large supply within a small area the itinerant buyers from Rangoon or Bassein may inspect a heap of grain, probably weighing a basketful or two, and buy it, paying of course on the spot. But where this method would involve the

risk of delay in filling a cargo the other classes of buyers are active and these have various systems for discovering lots to purchase. Commonly a sub-broker, called a spy, is employed, and there may be intermediates called jungle-brokers residing in various local centres too. According to one system the spy, finding a cultivator with his harvest ready for sale, brings to his principal a handful from the leeward side of the heap; the principal inspects and names a price which the spy is to offer with the condition that the paddy is free from yellow grain and breakage in milling. In some parts selling to Bassein the principal weighs one milk-tinful of the paddy against rupees; and weight of 16.25 tolas shews he can pay locally for baskets of 128 milk tins the price quoted for nine gallon 46 pound baskets at Bassein. The spy then visits the cultivator, and if the price and conditions are accepted, takes several handfuls from various parts of the heap, perhaps a quart or more in all. The principal husks this sample by rubbing between two small blocks of wood which have shallow grooves made by saw-cuts about half an inch apart in diagonal directions making a diamond pattern all over. The product of this husking is *lôndi* and the next skin of the grains must now be removed to give white rice. This is effected by putting the *lôndi* into a canvas bag shaped like a sausage sewn up at one end, and beating it on a hard flat surface. The product is examined for grains of red *ngasein*, for broken grains, and for grains which are yellow or have the opacity which is an indication of incipient yellowing. Yellowing results from exposure to damp, which is also indicated at times by fungus on the husk which causes a darkening of its colour. Mud on the outside of the husk also causes a natural suspicion of damping, though the mud may have been splashed on without doing harm. Broken grain may be due to damping or to cracking through excessive exposure to the sun, but in any case does not suit the miller. The principal may sometimes go to the threshing-floor to make these tests if there are several lots close by. Then if buying at his own risk he closes the bargain at the price offered by the spy, or if defects are found refuses to buy or offers a reduced price. He may give five per cent. earnest-money at this time, to be forfeited if delivery is not taken within a specified period of about six or eight days; but this is not always given. Payment is made when delivery is taken; often the value of the heap at the cultivator's estimate of its amount is paid in the presence of witnesses before measuring and any required correction is made afterwards—the sellers thus protect themselves as they cannot take back their paddy in case of dispute after measurement when it has been put into the boats and mixed with other paddy. Sometimes the broker weighs one basket per hundred during measurement to verify that the sample quality is maintained. Ten-rupee currency notes are generally used for payment. In 1918 under the special war conditions prices paid in silver were fixed at five per cent. below the price in paper. This was due to the demand of cultivators for silver—which was then scarce—and their distrust of the new issues of small notes; but it was not so much a discount on the notes as a charge by the buyers for the extra trouble and risk of carrying silver money. The smaller dealers have to go to Rangoon or Bassein to get the value of their cargoes and bring it back with them; they do not go by the slow cargo boats but economise time by going by steamer or train. Some large dealers and agents use Treasury transfers, and in Mawlamyainggyun, where Pyapôn is the nearest treasury, they want arrangements by which they could get money from the local sub-treasury from March to June inclusive so as to save sending men to Pyapôn to bring the money they require. It is to be noticed that the sale of the harvest is considered a man's job; the busy Burmese wife is active in inspiration and stimulation of her weaker half who constantly runs off to consult her, but she does not usually appear as a principal in the negotiations.

144. If the threshing-floor is near enough to a place convenient for barges to tie up and for the grain to be carried to the barges by coolies, the purchaser always takes delivery at the threshing-floor. If the grain is not so easily accessible various methods are followed according to the scale of business of the buyer. Local dealers may collect at some centre by sampans; local agents of Rangoon or Bassein dealers may arrange to transport by cart or small boat to the nearest place

convenient of access for their barges; sometimes the cultivator, if his threshing-floor is isolated and inaccessible, transports to a more convenient place if he can still watch the grain and arrange its sale there. But convenience of access must always be understood with reference to the quantity of paddy available. Near Sagamya and in a few other parts the cultivators cart their sale paddy to the broker's wharf as a matter of a local custom, probably due to the neighbourhood being too broken up by streams to have a plentiful supply of carts yet not sufficiently so to be able to transport by boat. But usually the paddy is delivered to the broker at the threshing-floor, and as a rule the price is then less than the price at the loading-place by just the extra cost of transport, which rises to Rs. 6 per 100 baskets in a few places but is usually Rs. 2 to Rs. 3. However short the journey Rs. 2 must generally be paid and Rs. 3 will carry then to a considerable range. In the south this local transport is nearly always by boats ranging from small dug-outs to sampans of 300 baskets burthen; in other parts carts play some part either carrying direct to the barge or to a point which can be reached by the small boats. Continued cultivation, by silting up low marshes or small water-courses, has removed many obstacles to the passage of carts which formerly existed, and the cost of marketing has thereby been diminished. In the neighbourhoods east of Kyaikpi particular stress was laid by the people on the scarcity of carts which prevailed at the time of their last settlement (1906) which made internal transport so much more expensive than it is now with an adequate supply of carts. Carts are always hired quite locally because it is rarely possible for them to go far away, and frequently the seller arranges for them and gets the river-bank price accordingly for his paddy. For the loading of the barges the usual charge is one rupee per hundred baskets, including carriage by the coolies for a distance not exceeding forty or fifty fathoms; an extra charge is made for greater distances. The work is done as a rule by the coolies of the barge who thus receive an addition to their pay.

145. The produce of gardens is generally sold retail to persons living near by or to others who come in boats or sampans to buy and transport to some town such as Wakema or Bassein or to go hawking in the villages and hamlets along the creeks in areas which have no gardens. There is no organised trade; the buyers are commonly people to whom it has occurred that they would like to undertake such a small venture. Some of course do this every year; for many it is a single experience. The miscellaneous vegetables grown in the gardens behind Myaungmya Town are carried nightly on the head or shoulder to Myaungmya and sold in the bazaar next day to the townsfolk and to the country cousins, of whom a certain number come to town each day to get some variety in their diet, buy clothes, borrow money and for other miscellaneous purposes. The produce of most other gardens in Myaungmya Township, including the *danyin* fruits, which are the most important product immediately to the west of Myaungmya Town, and the pineapples of which a certain number are produced in a few places, are bought chiefly by people coming in boats from Bassein.

146. Most of the work which leads up to the planting of the paddy fields is done by the cultivator himself and his family or by labourers hired for the whole season which begins about the middle of May and ends in the middle of September or a little earlier. The first month is generally consumed in collecting firewood or materials for making and repairing field-huts, cattle-byres, harrows and other implements, and the remainder of the time in regular cultivation, including all the work of the nurseries and the planting of the fields as well as the ploughing and weed-cutting. The pay given for the season varies a great deal according to circumstances. In a small holding the employing cultivator will manage with an assistant who is perhaps unable to plough and receives fifty or sixty baskets of paddy for the season. If the growth of grass is heavy or the stiffness of the soil absorbs much time in ploughing a third worker is required, and he may be young and untrained or of inferior calibre and receive about forty baskets. With a larger holding and an extra yoke a capable ploughman must be hired, and he also requires assistants; but with a further

increase of yoke the proportion of halfskilled assistants can be reduced. In holdings of more than one yoke the employer often confines himself to the lighter work and employs a skilled ploughman for each plough at sixty to eighty baskets. But for reasons of age or health or temperament or other interests the employer may wish to take a still less active part in the work, and then he will take for one ploughman a man who is capable of acting as his agent and managing the other employees; such a *gaung-saung* must be paid 90, 100 or 120 baskets. All the above wages are supplemented by food supplied by the employer. If the latter's house is near the fields or if he has taken his family out to live in a hut near the fields, the labourer eats with the family and becomes practically one of them, the women and girls of the family doing the cooking. If the employer lives in his house at a little distance from the fields he often goes out every day and breakfasts with the labourers in the field-hut at midday, returning home for the evening meal; in such a case the junior labourer (who may be specially hired at about twenty baskets for the purpose) generally cooks in the field-hut for the evening meal, while the midday meal may be cooked by the same person in the same place, or by a girl of the employer's family who goes out to the hut for the purpose taking supplies with her, or it may be sent out from the employer's house. In any case it is generally of the same character as is eaten by the employer's family unless the latter are particularly luxurious and have some chutneys or condiments which they keep to themselves if the labourers do not come to the house to eat. In the few cases where day-labourers are fed they are fed on the same scale as the family usually enjoys, no special feast is provided for them. In some houses the allowance of betel and tobacco for the labourer is carefully meted out; in others he consumes *ad libitum*. The usual estimate of the cost of feeding a full-grown labourer and supplying him with betel and tobacco, reckoning paddy at Rs 115 per 100 baskets, comes to about Rs 55 per mensem in Karen houses and Rs 6 in Burman provided a certain amount of fish can be caught without expense and some edible jungle products like leaves of the wild convolvulus (*kazun*) or pith canes (*kyeinbu*) can be obtained fairly freely. If these are not available Rs 15 per month must be added to the estimates. Occasionally an Indian labourer is employed by a Burman who then often feeds him in the same way as a Burman labourer, but sometimes makes him an allowance of rice, chillies, onions and other things to cook for himself, as the latter system is inconvenient unless a large number are employed and can have a boy on low wages to cook for them, the Burman rarely hires an Indian who is not sufficiently Burmanised to be taken into the family. Indian employers almost universally employ Indian labourers. They keep them permanently and do not discharge them seasonally; in the slack season they are used as cattle-herds or to repair bunds or as general hewers and drawers. It will be seen when the cost of cultivation is discussed (Chapter XII and Statement 12B) that Indian cultivators hire a great deal more labour than Burmans or Karens. A system known as *kaukbin-ap* is employed by some owners who either live far away or think they can make more profit this way or have a difficulty in getting a tenant who has enough capital to work the land and do not care to accept others. Under this system the employer supplies cattle, ploughs, seed and everything required except labour, for which he pays at Rs 16 per *kwet* of forty fathoms square (1.32 acres); the other party in consideration of this payment hires such labourers as he thinks fit and presents the owner with a fully planted holding at the proper season in September or October.

147. For the harvest season the hiring is generally on the same lines as for ploughing. As has already been noted there are no organised gangs of Indian reapers as in the Insein, Hanthawaddy and Bassein Districts, but a few persons working through a long reaping season cut the whole crop. The hire is about 40 to 50 baskets for the season, the *gaungsaung* getting no particular advantage as a rule as his greater experience is here of no greater use than the strength of the younger man. Sometimes the same person is hired for the ploughing and the harvest, going off for six weeks or two months between to pick up an odd living at fishing or jungle-cutting or to get fuel for his family or others. Sometimes he is kept on continuously from May to March and fed in the employer's house all the

time, minding cattle or cutting grass for them or doing odd jobs between the seasons. The preference of Indians to keep their labourers employed permanently and for the whole of each year has already been noted. When the *kaukbin-ap* system has been adopted a second contract is often made with the same or another person to take charge of the fields about the end of November and complete the harvest, handing over the threshed crop at a fixed rate of Rs. 10 per *kwet* of forty fathoms square (1.32 acres). The case of the "contract-cooly" mentioned in the next chapter is often confused both by rural Burmans and by high officials with the case of *kaukbin-ap* in which the same party ploughs and reaps.

148. Practically all seasonal labour is hired at rates expressed in terms of paddy as mentioned in the foregoing notes. But this does not mean that payment is always made in paddy. Young bachelor labourers may wait till harvest to receive their wages and then may take the paddy or ask the employer to sell it with his own share and pay them the proportionate price. More commonly only a little remains to be dealt with in this way because the labourer requires advances all through the season to support his parents or wife and family; he receives his own food in the employer's house but his family must be provided for separately. Quite commonly the advances are approximately equal in value to the proportion of the season's hire earned up to date and the little balance due when the work is completed is taken before the labourer leaves. The advance is made in cash and the corresponding debit to the wages is reckoned at the prevailing local rate *sabape* loans at the time. The employer commonly has to take a loan himself for the purpose and then charges the same rate as he pays if he borrows on *sabape*, but sometimes he borrows at cash interest and makes a little profit, which however is not considerable because generally in such cases he has had to borrow the money rather earlier in the season and pay interest for a time while the labourer's share was idle.

149. If a labourer gets ill seven days' absence from work is generally tolerated unless the season is nearly over and there is difficulty in getting the work finished. After seven days, if the labourer is still ill he must supply a satisfactory substitute till he recovers, or the employer will do so at his expense. If the illness continues another ten days the labourer is generally discharged with pay proportionate to the completed part of the work and settled in case of dispute by reference to a group of co-villagers. If the labourer after recovering and returning to work falls ill again only three, four or at most five days absence is generally tolerated. The substitute's pay is generally at eight annas per day which is deducted from the wages of the sick labourer at *sabape* rates as though it were a cash advance, but the employer bears the cost of feeding the substitute until he discharges the original labourer.

150. It naturally happens in many cases that there is greater economy in hiring for some parts of the work by the day or by piece-work than in hiring the whole time of a labourer for a season, or there is greater convenience in setting several hands to work at once so as to get a piece of work finished quickly. The ordinary rates in such cases were noted earlier in this chapter in the description of the method adopted for each operation. But for all the rates quoted there a reservation must be made, of which an example is the rate for planting. Six rupees per *kwet* of 1.32 acres is the standard rate; but this will only apply in many places when the hire is for five or six *kwet* at once, the rate for a single *kwet* being Rs. 8 or Rs. 9 or perhaps ten baskets of paddy. Where such employment is plentiful the labourers may accept the low rate for smaller jobs; but where it is scarce—as at Kyaukpyu—as much as eight or nine *kwets* must be given to secure the rate of Rs. 6. In some parts the Rs. 6 per *kwet* for planting is exchanged for one rupee per day and a midday meal. In backward parts it is said that the rates for casual labour were at ten annas and a meal per day up to about 1910; but the system of payment by the *kwet* seems to have prevailed in most parts before that date. As noted already earlier in this chapter there is no annual influx of Indian labour; neither is there any longer such an influx of labourers from Upper Burma.

151. An attempt was made to compile a statement of the number of cattle in the settlement area from the records on which the statement of this number in the Provincial Season and Crop Report is based. But difficulties arose from the lack of some detailed records

in past years in those circles of which only part is included in the settlement area and because those of the last year were not all ready in time to be used.

152. For 1917-18 the figures gave approximately the result shown in the

	Bulls Bullocks	Cows.	Young.
Oxen ..	10,500	7,300	8,300
Buffaloes ..	9,500	12,000	8,600

margin for the settlement area apart from the area of original settlement in the Hlaingbôn and Kazaung village-tracts and isolated kwins in the south-west (in Tract 27 of Map III). The Deputy Commissioner in 1917, however, was of opinion that the figures in the annual report of 1916-17 for the whole district were not very correct; and the figures of 1917-18 on which the above were based differed very little from them in magnitude. An attempt was made by the settlement party to discover figures representing both the stock of cattle and their mortality by obtaining from the headman of each village while soil-classification was in progress, a statement of the number of cattle in his jurisdiction, and by counting the foils of the cattle-death register for four years back from the date of counting, classifying the entries with the aid of the villagers.* The result is shown in the accompanying table, the same area being represented as in the above statement save that the large towns of Myaungmya, Wakèma and Mawlamyainggyun are not included. The exact meaning of the death figures requires a little thought for its realisation. The deaths are not the deaths in a group of definite individuals; the individuals composing each group changed during the four years, e.g. by young cattle being taken to plough and new animals being imported into the district. This is however ordinarily the case in mortality-returns by ages and is the basis on which insurance of cattle is arranged. There was some idea at the beginning of obtaining figures which would give some idea of the risk attached to a cattle-insurance society; but it must be remembered that many entries of deaths in the headman's registers are avoided by slaughter for food, and the slaughter-house records would have to be considered as well as the above because owners of insured cattle would be less inclined to sell to the butcher to prevent loss by death. For plough cattle this correction would be negligible perhaps under the short-term conditions on which insurance is effected, but that is not quite certain. The figures suggest that one plough bullock in eight died in the period of four years while one in five was about the proportion for other animals. The excess of females above males in plough buffaloes is possibly due to a greater readiness to let the latter go to the butcher; with bullocks the case is different because cows are of such inferior value for ploughing. Reckoning male and female buffaloes as equal, each cow as worth half a

Description of Cattle.	Stock.				Deaths in four years.			
	Oxen.		Buffaloes		Oxen.		Buffaloes.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Plough Cattle ...	15,580	4,666	9,820	10,948	1,927	888	1,608	2,185
Too young to plough	4,686	3,829	4,677	4,381	725	610	1,478	1,397
Too old to plough ...	518	263	300	245	804	315	381	788
Others not ploughing	160	1,225	64	74	?	81	8	1
All ...	20,907	9,983	15,161	15,648	3,456	1,704	3,469	4,371

as worth three-quarters of a buffalo for ploughing, the average area per yoke given by the above figures and the 1917-18 paddy acreage (that being the middle year of the collection of the figures for cattle) comes to 20.76 acres per yoke for bullocks and 27.68 for buffaloes including fallow land. But this average is unduly increased by the inclusion of all the broadcasted third class land in flooded areas. This flooded third-class land

*The "stock" was the stock on the day of counting, which differed from village to village and might be any day in the first five months of 1917, 1918 or 1919. The "four years" in each village ended on this day of counting. The "stock" probably increased by ten per cent. during the four years.

is either ploughed before the season for other land begins (and then its whole area is a gratuitous addition to the capacity of the cattle) or it is ploughed very lightly and requires far less time and attention than ordinary land. The usual local estimate is that in holdings with a normal proportion of high and low land a yoke of oxen can plough fourteen acres of normal land well and eighteen poorly while buffaloes can plough twenty well and thirty poorly; but smaller areas are generally estimated in Myaungmya Township. Taking as a basis the statistics collected in connection with the cost of cultivation (and omitting therefrom the figures relating to natives of India which represent only a small anomalous class amongst whom however the average area per yoke is twenty-one acres) in which an attempt was made to

Tracts.	Persons examined.	Head of Cattle.	Acres per yoke.	Yoke per person.
8 and 9 ...	190	620	13	1.6
10 to 22 ...	1,431	3,412	17.5	1.2
23 to 29 ...	251	582	20.5	1.2
All ...	1,872	4,614	17.4	1.2

include only holdings which were representative of holdings in their locality, the average worked area per yoke (excluding fallow land) amongst Burmans and Karens is as shown in the fourth column in the margin. Tracts 8 and 9 (as shown in Map III) occupy the western half of Myaungmya Township and Tracts 23 to 29 occupy the south-west of the

settlement area where there is much newly-cut jungle and where in many cases the areas concerned are a little doubtful. It is usual to say that the average area worked per yoke is too large; but that seems to be a proposition requiring considerable qualification in the light of the economics of agriculture. The Stock-Breeding Committee of a few years back declared that there was a shortage of cattle all along the coast from Pegu to Myaungmya; but the local cultivators generally deny that this is the case at present. More intensive ploughing would give no advantage in these water-logged soils, deep ploughing is certainly not to be advocated; and although a larger supply of cattle would bring down the rates of hire temporarily and lead to the earlier slaughter of the weaker animals it is most probable that there would be a large number of cattle unemployed and that the present conditions would be restored again in a very short time. If more cattle are employed more ploughmen must be employed too, and it is doubtful if this would be economical. People have neither space nor leisure for tending an excess of cattle, and there is no reason for supposing that any large adjustment through the meat supply would be made. The last column of the above table indicates that amongst a group of cultivators selected to represent the normal cultivator in each village the men employing one yoke are typical of the greater part of the settlement area; but in Tracts 8 and 9, in the hard sterile soils of the west of Myaungmya Township, the men who possess two yoke or more numerous and five yoke amongst three men is probably about the average condition there.

153. The choice between oxen and buffaloes is a complex matter. The greater liability of buffaloes to disease and their less docile temper and the differences of grazing requirements are not full explanations. The oxen in these wet localities do not suffer so severely as buffaloes from acute diseases, but they suffer in general debility and are never so strong as those of districts a little to the north. Buffaloes may therefore be used in a holding too extensive for a single yoke of oxen, the higher price of cattle being repaid by a saving in the number of ploughmen; a similar effect occurs in larger holdings and sometimes a man uses a yoke of each in the same holding. Another factor is the habit and tradition of the cultivator; some cultivators having come from regions in which only oxen are used prefer oxen although their neighbours use buffaloes. It is said that in the colonisation of Mawlamyaingyun Township oxen were generally used for the first ploughings because buffaloes, when the harrow caught in a *kanaso* root, would pull wildly to free it by force and broke its teeth, but oxen would stop and allow the ploughman

to extricate it without damage. When the land had got clear some continued with oxen which had proved good animals, and replacing one at a time still use oxen now; others sold the oxen and bought the buffaloes when the land got a little older and consequently so much harder to plough that if the holding were extensive it might be beyond the capacity of the oxen. When it was observed that buffaloes were frequently being used now at Hlaingbôn in quite new land the explanation was given that these were particularly docile animals which are more easily obtained now than formerly when the supply of cattle was smaller. Whatever the causes may be it remains true that in the greater part of the Mawlamyaing-gyun and in the south of Wakèma Townships buffaloes predominate although oxen are also used; the Kyaikpi River forms a sharp dividing line east of which buffaloes are rare, and in the greater part of Wakèma and the east of Myaungmya Township oxen and buffaloes are both used, oxen slightly predominating.

154. In all the delta owing to rain and flood oxen and buffaloes are crowded on to any piece of high ground; they are unable to take exercise, are exposed night and day to an alternation of downpours of cold rain and hot steamy intervals or are crowded into small sheds. Such conditions cause depression of the nervous system, congestion of internal organs and a general predisposition to contract disease. The bites of mosquitoes, tsetse flies and other insects are probably more important factors than is generally recognised. The drinking-water of cattle also is contaminated in various ways and there are seasonal changes in many parts to and from the quite fresh water of the rainy season and the slightly saline water of the dry season. Anthrax is apt to break out in the early part of the rains when the animals suddenly obtain access to new and luxuriant pasture after partial privation on a drier kind of diet, but this is to some extent avoided in the parts where the fields are irrigated by fresh water tides in the hot weather. Since about 1907-08 the most important contagious disease in the district has been foot-and-mouth disease which accounted for 2,641 deaths in 1907 to 1916 or four-sevenths of all the deaths from contagious diseases. The remainder were equally divided between rinderpest and anthrax. But in earlier years the proportions were different, especially in 1905-07 when there was a terrible loss by rinderpest. Deaths by anthrax were also more numerous before 1907, while those from foot-and-mouth disease averaged about the same as in later years in spite of the small stock of cattle formerly concerned. The "Rules for Preventing Cattle Disease" were first brought into force in the district in 1895-96, and they appear to have been learned by the people and observed to some extent. But it is impossible to say yet whether the reduction of mortality is due to the effect of these rules or to the work of the Veterinary Department or to the changes of conditions as the country became more fully cultivated or to a general improvement in the ideas of the people on the subject or to the fact that formerly so many of the cultivators were new colonists with little knowledge of the local conditions and that experience has taught them lessons. No cattle insurance of any kind is practised.

155. Amongst the causes of disease noted in the last paragraph mention was made of the bites of mosquitoes. Except for three months in the hot weather, and in some parts even then, all the cattle must be protected from these insects or they will suffer from lack of sleep and grow thin and weak. Their eyes get red from this cause; but whether there is any fever corresponding to the malaria of man I have not been able to learn. The cattle appear to be very sensitive, as in some places where the people think no harm of the mosquitoes for themselves and hardly consider even the inconvenience of their bites they regard protection of the cattle as imperative. Buffaloes are generally protected by the lighting of smoky fires immediately under their noses or by hurving themselves in mud; all oxen and some buffaloes are protected by being tucked up at night in mosquito curtains. The size of the curtain depends upon the number of animals to be accommodated; one curtain for each pair is common but a curtain for four animals is often used. The material used is coarse calico which, before the war cost Rs. 3.125 per roll, but rose to twice that or

more. One roll suffices for two animals, two rolls for four; and the curtain lasts perhaps two years but often only one. A framework of bamboo arches is made to support the curtain, which is about six feet high and may touch the ground at the foot or stop just short. Always near the ground a low wall is woven of bamboo to prevent tearing by hooves. The wall is usually a foot or a cubit high, some few make it higher, but most object to this on the ground that it causes the animals to perspire excessively. The animals are placed inside the curtain at some time between four and six in the evening and stay there till next morning.

156. There are no regular cattle fairs. Formerly cattle were brought in numbers from the Chindwin Valley to Ma-ubin, Yandon and other centres, and from Arakan to Henzada and Bassein, and the traditional way of acquiring cattle was to go and buy at Pantanaw, Danubyu or Bassein and walk home with them, swimming across the river. Some people from Pantanaw too used to hawk cattle round the district. The importation from Arakan and Upper Burma seems to have stopped but no difficulty seems to be felt yet, probably because cattle filter down from Prome and northern Henzada where it is customary to train young animals and sell them off before they get mature. But whether the supply will continue to be sufficient is another question and demands attention especially in the latitude of Prome District. There are also many buffaloes and some oxen bred locally. The purchase price of oxen in full vigour is generally about Rs. 50 to 70 per head and there is no market for cows. For buffaloes the price of males is usually Rs. 60 to 80 per head and for females Rs. 80 to 90 but the latter price ranges from Rs. 70 to 125 or even more. All these prices are said to have risen very much in the last ten or fifteen years. For hire the rate is commonly twenty to twenty-five baskets of paddy per head for oxen for ploughing and ten or fifteen for threshing; if hired for the whole cultivating season from May to March a reduction of twenty baskets per yoke is made in many parts if the cattle are retained and fed and tended by the borrower during the interval between the ploughing season and the harvest instead of being given back to their owner. For buffaloes the rates of hire are about five baskets per head higher for either ploughing or threshing. In the third table of paragraph 152 above the total number of cattle employed by the 2,022 representative cultivators examined with regard to the cost of cultivation was shown as 5,160. Of these 24.9 per cent. were hired cattle and the remainder owned by the persons who employed them. Compiling the statistics by races it was found that the 1,041 Burmans hired 19 per cent., 831 Karens 29 per cent., and 150 Indians 34 per cent. of the cattle they employed. Of the total 2,022 persons 427 had used only hired cattle all through the four years preceding the enquiry and the remaining 1,595 owned either all or some of those they used during those four years and owned 4,037 head altogether at the time of enquiry. Statement 12B of this report shows in columns **9 to 14** the purchases and sales of cattle made by these 1,595 owners in four years; the number of purchases each year is about one eighth of the total stock held and the number of sales about one fourth of the purchases.

157 Usually cultivators mind their own cattle through the ploughing season, Tending losing them in the fields which have not yet been planted. When ploughing is finished it is customary in some parts where conditions are suitable for the cultivator and his family to mind them still; but in others the buffaloes are handed over at Rs. 10 per head for the whole interval up to harvest time to a herdsman who has a hut on the edge of a grazing ground. In the hot weather only bad-tempered buffaloes are sent out in this way, others being herded by the family in fields near the house. Grass must be cut for oxen in the rains, and a few keep buffaloes at home too and cut grass for them where no local grazing ground is convenient for tending by the family. No salt is supplied to cattle even in the purely fresh water tracts; a little oil-cake is given to oxen occasionally, but its use is comparatively rare.

158. The total area of reserved grazing-grounds in the settlement area is shown in Statement I to be 38,689 acres. Many of the grounds are mere flooded patches of no use to any but fishermen. Others are covered with heavy jungle, either because there is no organisation to keep them clear, or because they were originally uncleared *kanazo* jungle and never have been cleared, but were really reserved against extension of cultivation before all the land had been taken up. An endeavour has been made by the Deputy Commissioner to get the jungle cleared in some grounds by granting licenses to grow sugar-cane for two or three years, but the people I have met seemed to think they had made rather a poor bargain and I doubt if the system will become popular. The people point out that the parts covered with *kanazo* jungle cannot be treated in this way owing to the expense of clearing, the numerous *kanazo* breathers which encumber the ground, and the excessive water. The difficulty could perhaps be met by dealing with associations of people who would undertake to clear the whole ground in consideration of a payment. The people ask for a right to cultivate paddy for ten years, saying that this would repay the trouble of clearing; there are obvious objections but it is worth considering whether these should not be discountenanced if the grazing-grounds are needed.

159. The question of the desirability of grazing-grounds underlies the question of their sufficiency. For the dry season no question arises as the animals graze in the paddy fields; it is only the end of the ploughing season and the interval up to harvest which must be considered at present. Where buffaloes are kept in numbers some sort of grazing-ground seems to be necessary, but where oxen are used this, in view of the facile spread in grazing-ground of cattle-disease, is doubtful. For oxen grazing-grounds which are so low as to be flooded at all times in the year when they could not graze equally well in the paddy fields are useless, while others seem to be unnecessary. Of matters commonly overlooked in this connection one is that where grazing land is not provided some consideration of that should be made in the revenue in comparison with other places in which the revenue covers the right of grazing cattle as well as the occupation of the particular land assessed; the mere addition of the cost of cutting grass to the "cost of cultivation" allowance is not really enough. Another matter overlooked is that in all older countries the regular course of development of agricultural practice has involved the closing of the fields against promiscuous grazing. The question therefore is too involved to be discussed here. There is rarely any suggestion made by the people that the grazing-grounds are insufficient. On the contrary there is in many places a desire to take the grazing-grounds into cultivation. Often no doubt this is merely a case of individuals with their strong desire for paddy land being more articulate than the unorganised general community, but in some places the general feeling is distinctly in favour of cultivation. The Deputy Commissioner in 1917 began an organised investigation of the grazing grounds, and after putting into some order the chaotic records of them which existed in the district office arranged for each to come systematically under consideration with a view to its abolition or retention and proper demarcation. The bad records were doubtlessly to blame for the imperfect demarcation of many of the grounds. In other cases there has been great extravagance in marking out tortuous boundaries instead of simplifying these by excluding or acquiring small pieces of land. There have been a fair number of prosecutions for trespass in the grazing-grounds but the surveyors have not, in the past, been sufficiently supervised in this matter and the Courts have not been sufficiently strict in demanding proof that the land in question really formed part of the grazing-ground. In one case the boundary shown on the *kwin* map differed from that in the map of the original notification, and the map filed in the proceedings of the Court differed from both in a way inimical to the accused and was not certified; on the ground the physical features did not make at all clear the boundary of the ground and the trespass appeared to have been made originally by a former revenue surveyor who had sold the extension of cultivation to the persons then accused. Such cases give no help in the long run

maintaining respect for grazing-grounds; it is to be hoped that the investigations now in progress will lead to the erection of clear permanent boundary marks. In the course of soil-classification the members of the settlement party reported to the Deputy Commissioner all cases of difficulty about grazing-ground boundaries which came to their notice, and generally made a special inspection to look for such matters. Miscellaneous notes on many of the grazing-grounds were made on the last page of Field Forms C which were bound in a volume and placed in the district record-room in accordance with the usual practice of settlement parties.

160. In 1918 there were 5,712 pigs and 820 goats reported for the settlement area, the latter being located chiefly in the towns, especially in the compounds and basements of government buildings. Besides these there are chickens in nearly all villages and ducks in some. According to the scientists the *Stegomyia* mosquito which is common in the towns should also be reckoned as a domestic animal. Horses are rarities except just in Myaungmya Town and its suburbs and near Kyaikp¹; they number only 74 all told.

161. The usual manner of describing areas of land is in terms of the *kwet*, which is a square of forty fathoms, each fathom being four cubits of six feet, and so is almost exactly equal to 1.32 acres. A convenient result of this is that for all practical purposes one may take three-quarters of a rate per *kwet* as the rate per acre. Whenever any kind of labour or supply is measured by the area of land concerned the *kwet* is the unit. Occasionally the area of a holding is stated in acres as quoted from the tax-ticket, but almost invariably the *kwet* is used more freely. In many cases a holding is simultaneously described by its outturn, but cases in which the *kwet* measurement is not known are uncommon because there has nearly always been some experience of paying transplanters or reapers at a rate per *kwet*. Sometimes failed candidates from survey schools are employed to estimate areas in acres, but cultivators prefer to multiply the mean lengths of pairs of opposite sides in an approximately rectangular field and to make rough corrections to this for a field of irregular shape. Not every cultivator understands this, but generally somebody in the village does. Still more frequently the area is estimated by employer and employee on the basis of the time occupied or some traditional information or by the eye, but the method of mensuration is still in the background. In the course of tabulating the outturns stated by cultivators for their holdings it was found that over the whole of Mawlamyainggyun Township the average equivalent of one *kwet* obtained by comparing their estimates of area with that calculated from the maps was 1.37 acres, so that in ordinary holdings their estimates are reliable on an average.

162. For paddy the real unit of measurement is, as in most parts of Lower Burma, not the basket but the milk-tin, so that much of the talk about standardising the basket is besides the mark as well as useless so long as there is no systematic and authoritative grading of the paddy and no way of providing accurate measures at a price which rural folk can afford. There are two milk-tins recognised. That of the "Cow's Head" brand of condensed milk is known as the *let-thit* tin and is rarely used. The ordinary meaning of a milk-tin, and the meaning invariably intended if no special mention of the matter is made, is the tin used for the "Milkmaid" brand of condensed milk, containing according to its label 14.25 ounces of milk. The Burmans describe this brand as *Kalama chin-taung-tàseik* and describe the tin as *let-haung*. Every basket measure in the district is described by its capacity in terms of *let-haung* milk-tins; and the proper method of determining the capacity of a basket is to fill it with paddy in the manner usual when measuring to sell, and to count how many times a tinful of paddy can be taken out of it. Successive observations give slightly different results but the variation is not large. The ordinary basket of the district as used for selling paddy is equal to 128 or 130

milk-tins, baskets of 132 or 133 being used occasionally. Several tests made during the settlement showed that the reputed measurements were always correct within reasonable experimental errors and that the Government standard basket lies between 125 and 126 milk-tins (Mr. Jamieson also recorded this result in his report on the Bassein Settlement, 1914). Similar measurements with a *let-thit* tin showed that this equals 0.93 of a *let-haung* tin

163. It was found by measuring in milk-tins that by pouring paddy into the measure slowly as much as twelve per cent. extra could be got into the measure without shaking it or pressing down the grain. The usual manner of pouring into the measuring basket when selling is to pour an excessive amount of grain in quickly so that the measure is filled suddenly and overflows; the excess is then removed with a strike which it is the recognised custom to hold with two hands in the middle so that the fingers make small grooves in the otherwise smooth-surface of the paddy. In order to secure uniformity and comparability with measurements stated by cultivators all measurements made by the settlement party, whether in connection with crop-reaping experiments or in any other case, were made "as if for selling."

164. The average area of paddy-land worked by one cultivator can be inferred with fair accuracy from the statistics collected with reference to the outturns of holdings, as each person examined gave the total outturn for the whole of the land he worked and the area in each case was carefully calculated after its boundaries had been checked on the ground, and as will appear in Chapter X the figures cover nearly a quarter of a million acres worked by 11,180 families. Examination of

Tracts	Holding examined.	Average acreage worked.	Average harvest (baskets).
8, 9	666	21	502
10, 11	644	20	625
14, 15, 16, 17	4,903	15	511
24 to 29	454	26	808
Remainder	4,513	25	968
All	11,180	20	714

the figures indicates a division into groups as in the margin. The average area worked (excluding fallows land) varies from 15 acres to 25 and is 20 acres for the whole; measured by the size of the normal harvest the holdings vary from 500 to 950 baskets and average 700 for the whole settlement area. The persons examined in these records

are so numerous that the averages cannot be far from representing the true average unit of cultivation free from errors of sampling although there are a few cases included in which the land was worked by two parties or was augmented by some other land. From the records collected in the enquiry into the cost of cultivation the averages in the same groups of tracts can be found for each race and these are shown in the second marginal statement, fallow areas again being excluded. The exclusion of fallow areas, however, makes little difference outside Tracts 8 and 9. For areas occupied (including the area fallowed in the year of enquiry) by owners and tenants in the same group

Tract.	Race.		
	Burman.	Karen	Indian.
8, 9	21	20	..
10, 11	23	19	46
14 to 17	19	18	32
24 to 29	24	23	45
Remainder	24	23	39
All	23	20	38

of persons figures are given tract by tracts at the foot of Statement 15A and a summary of them is given in the third marginal statement. The principal differences

Tract.	Owners.	Tenants.
8 to 11	24	25
14 to 17	19	20
24 to 29	25	30
Remainder	26	26
All	23	25

whole settlement area and for Tracts 14 to 17. In both cases the lower figures of the first statement are due chiefly to holdings of sub-normal extent, the figures of other statements being based upon representative holdings; but the figures of the last statement are also slightly increased by the inclusion of fallow areas. Tenants, it will be observed, work on an average slightly larger holdings than owners, but the difference is not generally great. Some have supposed that tenants, having to pay rent, would aim at a larger gross income and be inclined to work a much wider holding than owners. But

there is not so much difference between paying rent and paying interest on capital as to affect the average areas considerably. The area in fact grows by yoke of cattle and depends much upon the psychical and mental qualities involved in the management of large undertakings. The slight tendency for tenants to work an extra yoke of cattle is due partly to families in which the grown-up sons share their lot with their father; in an owners's family the father would continue to work his own holding while the sons hired additional land, thus the average area of tenants is increased more than that of owners.

CHAPTER IV—OCCUPANCY.

165. The only tenures of land current in the settlement area are (1) those derived from ordinary *patta* grants or by squatting and in a very few cases by lease under the Lower Burma Land and Revenue Act; (2) those derived by early occupation by squatting or lease under the Lower Burma Town and Village Lands Act; (3) the tenure of land held by a Municipal Committee or reserved by Government for its own purposes; and (4) the tenure of lands held free of revenue for religious purposes: this term including—as is customary—land used for monasteries and cemeteries and also for rest-houses, schools and other purposes more accurately described as social or communal. The issue of *pattas* has been discontinued since August 1908. Leases of land apart from house-sites in towns are confined to short leases of land earmarked for Government purposes or to leases issued by Deputy Commissioners under special circumstances for land in which there were rival claimants for the right of squatting. The area of land held for "religious purposes" is shown in Statement 1; for some of this there are regular grants, for some the occupation dates from very early times, for the remainder the tenure has arisen in the customary way by which, while the practice is confined to reasonable limits, Government omits from assessment all land actually used by the people for these purposes whether a formal grant has been issued or not.

166. The calculation of the average area of an estate from the figures of the Land Records Department would be difficult and perhaps impracticable, because that department keeps records not of estates but of holdings which have a technical definition restricting each to a simply connected piece of land assessed as in one main-kind—which in practice means, in all cases except that of paddy-land, assessed at one acre rate. It is possible, however, to deduce from the records of the Land Records Department figures representing the larger estates by using the local knowledge of the staff of that department as described in the next section. And some inferences may also be drawn from the estimates made towards the end of Chapter III of the average area worked by one cultivator. The ordinary cultivating owner in the villages does not own more than he cultivates either with one yoke or with more

cattle and the help of more hired labourers. Thus the average area worked by the normal small owner is approximately the average area owned by the same class which is therefore about 20 to 23 acres.

167 The investigation of large estates began with the preparation by each surveyor of a list of the assesses holding land in his charge, in which he omitted all those who were known with practical certainty to own less than 100 acres in all, but included besides those who owned 100 acres or more in his charge all who might possibly own so much if account were taken of land they owned in other charges. The area held in each kwin was totalled for each name. The lists of all the surveyors in the circle of one Land Records Inspector were then collated by the Inspector and the surveyors, and in all cases in which the same person held land in two charges the two areas were brought together under one entry. Thus lists were obtained showing the total area held by each person in the Inspector's circle, omitting only persons who were known to own less than 100 acres in all. The error in these omissions is negligible; the ordinary villager does not own land in widely separated localities, and as soon as he becomes possessed of 100 acres he becomes fairly well known in his neighbourhood. It would have been possible by collation of the lists for the six inspectorates to compile a list for the district, combining areas held by one person in two inspectorates; but it did not seem worth while as the boundaries of inspectorates are generally wide rivers such that few if any persons extend their estates to both banks apart from those half-dozen money-lenders who do business on the very largest scale. The results for each Inspector's circle are shown in Appendix B. The tracts mentioned in the second line are the new tracts formed for this settlement and shown in Map III of this report which approximately coincide with the inspectorates for which the figures were compiled. In the upper half of the compartment devoted to each inspectorate the numbers represent the number of estates; in the lower half the numbers represent units of 100 acres each. When this work was undertaken application had to be made to the Deputy Commissioner for permission to require surveyors to prepare their lists; the Deputy Commissioner then agreed that the work should be done for the whole of the Myaungmya and Kyagan inspectorates of which only parts were included in the settlement area, and asked that it should be done for the Einmè inspectorate too, although that lay completely outside the settlement area. The Deputy Commissioner also asked for an elaboration of the instructions for preparing the figures so as to show the control of large areas through mortgages; and measures were devised to meet his wishes. Accordingly in Appendix B four columns headed A, B, C, D are shown for each inspectorate. Column A considers only land completely owned without encumbrance of any sort. Column B shows the figures generally compiled in this connection, including for each person all the land he owns whether encumbered with a simple or a usufructuary mortgage or with neither. But land on which a person holds a usufructuary mortgage is in practice very nearly owned by him, and in most cases he does come to own it completely in time. Even a simple mortgage gives such large control over the land that there is little to choose between the position of a landlord collecting rent and a mortgagee collecting interest. Consequently column C was added to show the estates when land on which a usufructuary mortgage was held was added to the land already reckoned for column B; and in column D the estates were again classified after the area on which a simple mortgage was held had been added to each. It will be noted that in columns C and D the same piece of land may appear twice, once in the estate of its mortgagor and once in that of its mortgagee; but this does not occur in columns A and B. After inspection of the results it was considered unnecessary to tabulate also on the lines of columns C and D with the omission from each estate of the area encumbered with a mortgage, though it occurs to me now that that would have been a more logical procedure; a comparison of columns A and B however shows that except perhaps in Mawlamyainggyun and Kyaikpi Circles only slightly different figures would have resulted. Most of the increase of area in column D is due to small "holdings" of under 100 acres not shown in columns A and B. The general indication in columns A and B is that two-thirds to three-quarters of the

land is held in estates of under 100 acres, in the remainder of the land a considerable number of estates lie between 100 and 200 acres but comparatively little land is held in estates above 500 acres except by a few persons of very large estates exceeding 1,000 acres each and in one or two cases approaching 2,000 acres

168 None of these largest estates consist of a single continuous block, but there is a distinct tendency for large owners to confine their land to a narrow locality. There is indeed a vague recognition of spheres of influence amongst the landlord and money-lending classes in the various centres of Wakema, Kyōmange, Thayettaw, Mawlamyainggyun, those of one town seldom dealing with cultivators or land in the sphere of another. This is chiefly due to conditions of communications, for ease of supervision of tenants each landlord naturally prefers to have all his land in one neighbourhood, and if he has much land near his residence he often does not go far afield for any more. In this way wealthy men who live in the smaller villages also tend to acquire either continuous blocks of considerable extent or a large number of holdings separated only by a few fields in one or two adjacent kwins. Estates of 200 to 500 acres are commonly made up in this way.

169 The Land Records Department annually reports the area in the whole district occupied by agriculturists and by resident and non-resident non-agriculturists and an extract from its figures is given in the margin. The percentages of area occupied by agriculturists shown there are 83, 81 and 76 per cent respectively in the successive years taken, and would appear to indicate a tendency for land both before and after the war to pass into the hands of non-agriculturists. This is probably the case, but I am not prepared to give a firm opinion for the settlement area because there is the difficulty

Agriculturists and Non-agriculturists

Year ending 30th June	Acres occupied by			No. of cases of land let continuously.	
	Agriculturists	Non-agriculturists		Five years or more.	Under five years.
		Resident.	Non-resident.		
1908	516,872	40,883	66,139	3,057	6,966
1913	543,785	47,364	50,926	4,057	8,517
1918	501,051	71,319	107,967	6,062	7,970

that these figures relate to the whole district and could not be compiled for the settlement area alone, and the further difficulty of interpreting the figures because of the areas nominally occupied by an agriculturist but so fully mortgaged that they are practically owned by the mortgagee. War conditions probably led to many of these being entirely transferred to the mortgagee. An attempt was made to compile from the Land Records Department's figures for sales and mortgages a statement showing transfers to and from agriculturists and non-agriculturists, but the records present difficulties and there is also the difficulty that the description of either a vendor or a vendee might change to or from agriculturist or non-agriculturist on account of the transaction. A second attempt was made therefore in the settlement enquiry into sales and mortgages by recording for each person concerned his status both before and after the transaction. Enough was done to demonstrate that this course is practicable, but without a European Assistant Settlement Officer I was unable to add the compilation of these records to the task of the party.

170. A record of related interest was made however, in connection with the enquiry into tenancies and the following table embodies its results and shows the status and occupation of landlords* and their reason for letting their land. The

Description of Landlords by Races.

Description of Landlord, etc.	Leases made.				Acres let.			
	Burman.	Karen.	Indian.	All Races.	Burman.	Karen.	Indian.	All Races.
<i>I.—Agriculturists.</i>								
1. Woman ..	9.7	5.4	0.8	5.0	9.8	5.6	0.7	7.7
2. Child ...	0.5	0.0	0.1	0.5	0.5	0.8	0.1	0.5
3. Aged or infirm ...	8.6	11.6	.	8.3	8.0	11.2	.	7.4
4. Let temporarily ...	1.8	1.7	0.4	1.6	1.4	1.6	0.5	1.3
5. Excess Land ...	30.6	53.0	17.0	33.4	25.7	49.2	15.9	28.5
<i>II.—Non-agriculturists.</i>								
6. Money-lenders ...	1.3	0.7	21.6	3.3	1.4	0.8	22.3	4.4
7. Others ...	43.9	23.9	53.2	41.1	49.8	27.8	55.9	46.7
<i>III.—Doubtful</i>								
...	3.6	2.8	6.3	3.8	3.4	3.0	4.6	3.5
Total Leases examined ...	9,460	2,543	1,428	13,431	175,885	47,428	39,077	262,390

lowest line shows the total number of leases recorded, the other figures show the percentage in each class of landlords of each race, each landlord being counted over again for each separate block of land he let to different tenants so that the number of landlords compiled is better described as the number of leases made. A landlord was described as a woman or child or aged or infirm only when sex, age or permanent physical incapacity was really the reason for not cultivating; the widow of a non-agriculturist was classified according to the description of her husband. The fourth class shows persons who in the year of enquiry through illness of themselves or of members of their family or for other ephemeral reasons let land which they habitually cultivate. The landlords of the fifth class are working agriculturists who let only the land they have in excess of what they can themselves cultivate. A landlord was described as a "money-lender" and placed in the sixth class only if money-lending was his principal occupation. "Others" were generally traders who had invested their profits in land. It will be noted that 18 per cent. of the landlords and 17 per cent. of the land fell into the first four classes and roughly one-half the land into the non-agricultural classes 6 and 7. The first four classes must exist under almost any system of peasant proprietorship, and it is probable that in an area which had less newly colonised land they would cover a still larger proportion of the area. It is probably safe to say that as a rule 20 per cent. of the land must be let for these reasons taken together. One-third of the leases and nearly three-tenths of the leased land concern agriculturist landlords and represent the excess of their estates above what they can work. Nine-twentieths of the leases and one-half the leased land are related to non-agriculturist landlords. As this enquiry was extended to 13,431 tenancies covering 262,390 acres—forming 55 per cent. of the whole settlement area, representing about eleven-twelfths of all the land rented and not selected with any conscious bias—its results may be taken to be true of the whole rented area. It may be desirable to note that of these tenancies 10,682 were cases in which the rent was a true market rent and the other 2,749 were cases in which some personal relation between the landlord and tenant had led to some special reduction of the rent.

171. The figures of the second table for non-agriculturist landowners may perhaps be compared with those of the first which shows 179,286 acres or 24 per cent. of the whole district in the hands of non-agriculturists in 1917-18. The

* In this report "landlord" is used for an owner who lets his land to a tenant; "owner" includes both landlords and persons who cultivate their land, the latter being distinguished as cultivating owners where the distinction is not clear from the context.

second table relates only to paddy land and to the settlement area which occupies slightly under two-thirds of the whole district, and the statistics were collected at different times during 1917-18 and the preceding and following year. But in this second table 134,148 acres are shown as belonging to non-agriculturists even in the holdings examined by the settlement party and not omitted because of some discrepancy or omission in the record or failure to meet the parties to the tenancy. Comparison with the total rented area in the Land Records Statistics for 1917-18 suggests that these omissions by the settlement party in lands let at a competitive rent amounted to about 6 per cent of the whole. If it is assumed that the same proportion of omissions held amongst the non-competitive tenancies examined by the settlement staff the total area of paddy land rented may be estimated at 280,000 acres or 60 per cent. of the whole (61 per cent. of all the paddy land) and the part of this in the hands of non-agriculturist landlords may be taken as 143,000 acres or 31 per cent. of all the paddy land (or 30·6 per cent. of all occupied land) in the district. The omission in this estimate of tenancies of other than paddy land is quite immaterial; but since the proportion of tenancies in paddy land escaping record by the settlement party is probably rather larger amongst non-competitive than amongst competitive tenancies the true figures are probably slightly larger.

172. The proportion of agriculturists and non-agriculturists is treated again from another standpoint in item 10 of Statement 5 which has been compiled from the Land Records Department's Register of Tenants and shows something of the development in the last twenty years. The figures relate only to the 234,963 acres of land which are let at a competitive rent, and each landlord is counted once for every *kwin* in which he lets land*—which leads to figures slightly different from those already obtained. But they indicate a more rapid increase in the number of non-agricultural than of agricultural landlords during the war, and have been tabulated because they may be of use for comparison at some future date.

173. There are two reasons for this large amount of land held by non-agriculturists; one is the profit made by non-agriculturists in a locality of a rapidly growing agricultural population requiring to import many things from other parts of the province, the other is the indebtedness of agricultural pioneers. A pioneer, undertaking to cut the jungle in 20 *kwet* (26 acres), starts off perhaps with a loan of Rs 600 at 300 baskets of paddy as annual interest. The interest is not so high as it looks because the paddy produced from virgin soil is so chaffy, but it is very high and the reason is the risk involved. Some indication of the early history of a new holding has already been given in earlier parts of the report. The first year's harvest does not pay the interest on the loan. More used to be obtained from the sale of canes cut in the jungle near by, and often ends could be made nearly to meet in this way; but nowadays canes are less plentiful and poorer than before. The debt probably increased to Rs 800, but the land would be improving and, given good health and good fortune, the pioneer might win through at any rate so far that he could borrow on less onerous terms and perhaps might then pay off his debt. But the conditions of good health and good fortune were not always realised. A poor harvest might be due to a bad season, to ravages by animals, or to bad health; a good harvest might be absorbed in paying hired labour if health had been bad; in either case a fresh loan is required to finance the next season and this addition to the burden is often the decisive factor. It may be only a small extra straw for the camel, only Mr. Micawber's sixpence, but it leads to steady increase of debt, mortgage and foreclosure, and the land falls into non-agricultural ownership. Frequently the creditor does not want to own the land and sells it again; in this way there comes to be a certain amount of land passing through a temporary stage of non-agricultural ownership, but no estimate of its amount can be given. There is however a considerable class of cultivators who prefer to buy old land rather than develop new; Burmans are said to be less ready than Karens to open up new land, probably because they demand a more social life. These with the aid of mortgages buy back much of the land into agriculturist ownership.

* This is not quite correct; the surveyor counts a landlord a second time if the record for him runs over to a fresh page of the register—a procedure which is quite unjustifiable but leads to little error.

174 Statements 6A and 6B present analyses of the records of the sales of land in the four years 1902-03, 1907-08, 1912-13 and 1917-18 found in the Registers of the Land Records Department.

Sales of Land.

The tracts into which the land has been divided for these statements are the new primary tracts formed for purposes of the new settlement and shown in Map III, each tract number covering all tracts shown there which have the same number, no matter what letter may be added to that number in different parts of the tract. The years have been chosen at five-year intervals and so that the last is the middle year of the settlement operations; 1902-03 is a year just preceding the current settlement in the part where that was first effected; 1907-08 is the first year in which all the current settlements were in force (though intermediate rates were current in some parts); 1912-13 is a fairly representative pre-war year in which full rates had already been in force under all the current settlements for at least two years. Statement 6B relates to garden land and land used for *dhani* and miscellaneous cultivation; it calls for no remark and is only inserted for comparison at any future time when new statistics of the same subject are recorded. Related to Statement 6A is Statement 17 in which are tabulated particulars of sales which were recorded by the settlement party. The principle observed by the party each year was to record as many as possible of the sales which had taken place in the last three years, so that for some tracts sales in 1913-17 are included and in other sales in 1914-18 or 1915-19. Some notes on the value of Statement 17 will be found in Appendix C to this report; it is enough here to note that the average sale-prices determined are in general agreement with those in Statement 6A and that small differences can generally be explained by differing proportions of good and bad land in the holdings included in the settlement records and those included in the district records or by the differences of dates. The average sale-value per acre is Rs 75 in 1917-18 according to the Land Records Department and Rs 86 according to the settlement figures for an ill-defined time between 1913 and 1919. To assist in reading the meaning of Statement 6A in any tract the proportion of good and bad land (according to classification under the old settlement and therefore in accordance also with the present incidence of land-revenue) has been shown in item 4 of the statement, while for similar considerations item 5 shows the area included which was transferred as the foreclosure of a mortgage. As a matter of fact these areas have little or no effect upon the average sale-price because creditors do not allow interest to grow till a debt exceeds the sale-value of the land upon which it is secured (and as sale-values have been rising the creditors could not have fallen into a mistake on this point), while borrowers do not surrender land for less than its market value but either receive from the creditor the difference between that value and the debt, or sell the land elsewhere and pay the debt. The fact that in 1907-08 and 1912-13, before the war, seven per cent of the whole land was sold each year indicates that there is a free market in land, even the four per cent sold in 1917-18 under the shadow of war conditions would really be very high in most countries but part of that was due to conversion by poor people of mortgages into sales. In the reports of the Registration of Deeds Office it has been suggested that the increase of sales has been due to the foreclosure by Chetties of mortgages made in earlier years, but it is doubtful whether this has really affected one year appreciably more than another amongst those noted in Statement 6A. It should be noted that the figures given for the totals of all tracts do not cover Tracts 28 and 29 except in 1917-18, as no records were kept for these tracts in earlier year. The areas sold for 1902-03 also are probably deficient in all tracts except 8 to 10 and 14 to 17 and 20 to 22. The only abnormal figures in Statement 6A for the percentage of land changing hands are these of Tract 18 in 1907-08 and 1912-13. As these figures could not be prepared until this report was on the point of completion, it has not been possible to make a special local enquiry for the cause of this; the only relevant point which came to my notice in this tract was a complaint of the harshness of the current settlement.

175 The highest sale-prices in 1917-18 are shown by Tracts 12 (Rs. 134), 14 (Rs. 177), 19 (Rs. 93), 21 (Rs. 96), 22 (Rs. 98), 23 (Rs. 101) and the lowest by Tracts 8 (Rs. 10), 9 (Rs. 20), 16 and 17 (both Rs. 33), 25 (Rs. 30)

26 (Rs. 24), 27 (Rs. 17); but in all these latter except Tracts 26 and 27 there was a large excess of the poorest quality of land included in the area sold, while in the former the sales in Tracts 12 and 23 covered a particularly large proportion of good land. Owing to these differences in the proportion of good and bad land it is impossible to discuss the changes in detail within a reasonable space until a calculus has been invented which will yield a single index number for each tract comparable with the index for each other tract, the averages tabulated at present are not so comparable. A statement might be risked for the general total in which it is found that although the proportion of inferior land has increased each year the average sale price rose by 50 per cent between 1902-03 and 1907-08 and after remaining stationary for a time again nearly doubled between 1912-13 and 1917-18 in spite of the financial stringency of the war time. Some part of this last increase is probably due to war-time inflation of currency and the general fall in the purchasing value of rupees. Part is due to the general rise in the value of paddy so clearly exhibited by the general upward trend of the curves shown in paragraph 277 of Chapter X below. But more important is the large increase of population and demand for land. The consideration so often advanced that there is much new land available for colonisation in the south is really of little weight. There is as a matter of fact little competition between jungle for colonisation and developed land; the *clientèle* of the two markets is different. No doubt there is some mutual effect but it is almost as indirect as the effect of phylloxera upon the price of tea. The increased demand for land for the increasing population in the developed parts of the district has forced up the price of land, and the rise in the price of paddy has enabled agriculturist purchasers to give so much more without reducing their standard of living. The other great influence has been the profit made in non-agricultural business and invested in land as a safe lock-up. This investment led to further increase in demand and the rise in paddy prices by enhancing the value of the rent received has made land investment so much the more profitable and attractive.

A disquieting feature is revealed in the abstract at the end of Statement 17 which shows nearly five-sixths of the money obtained by selling land being used for economically unproductive purposes, in which description however is included the settlement of old debts. The implication is that for a considerable number of agriculturist sellers the sale has meant a fall in status from owner to tenant or labourer, but a more detailed study and tabulation of the status of seller and buyer before and after the sale is required for an adequate discussion of this matter. How far it represents economic deterioration of agricultural classes under war conditions it is difficult to say with the materials available.

176 Statements 7A, 7B and 18 deal with areas mortgaged in a manner exactly parallel to the manner in which Statements 6A, 6B and 17 respectively deal with sales, but the mortgaged areas shown in each case are the total areas encumbered, not the new area coming under mortgage each year. As for sales the discussion will be confined to paddy land. The figures for 1907-08 in Statement 7A are worthy of great suspicion; it is almost certain that they fall so far below those of 1902-03 either through errors or through differences in the basis of recording in the old area of the Mawlamyainggyun Township which contributes the greater part of the area. In the interval between 1912-13 and 1917-18 the area under mortgages has increased from 23 to 29 per cent and the average encumbrance from Rs. 34 to 57 per acre. This increase of area is probably due largely to the desire of creditors in war time to get security for loans already existing. None of the values given in these statements are really mortgage-values though they are commonly described as such. Mortgage-value of course is the maximum credit obtainable on land; the sums tabulated are the moneys actually raised, which are less than mortgage values because creditors will not accept the pledge of part of a holding however small the sum advanced; they insist upon pledging the whole holding and often take the revenue-receipt or the certificate of a report of a transfer as the visible sign of the mortgage. Loans secured on land are generally limited to two-thirds of the value of the land initially (and so mortgage-values are indicated better by

Statements 6 and 17 than by Statements 7 and 18); but they are sometimes allowed to rise to nine-tenths of the full value (including accumulations of interest) if the land and the debtor's residence are near enough for the creditor to have satisfactory supervision, though otherwise about four-fifths is the limit. When this is reached the creditor will require the debtor to pay something; the latter may try to sell the land or transfer the mortgage or may surrender the land to the creditor in consideration of the difference between the debt and the agreed sale-value—which is generally a fair value because it is at least higher than the offers the debtor could get elsewhere. Five-sixths of mortgages are simple and one-sixth usufructuary. The latter are preferred as a rule by the capitalist as they lead to less worry and bother, and he will commonly lend on these such a sum that the rent will yield about two per cent per mensem interest or less. For simple mortgages rates charged by creditors in Mawlamyainggyun are Rs. 2 to 2.25 for land near Mawlamyainggyun, Rs. 2.8 for land near Pyaleik, Rs. 2.75 at Kazaung and Rs. 3 at Hlaingbôn, the rates increasing as the land gets further from the creditor's residence irrespective of its value. No second mortgages are ever contracted; if further credit is required either a new mortgage is made with the old creditor or he is paid off with part of a large mortgage effected with a new creditor.

177. Comparing the various tracts it is found that the largest encumbered areas are in Tracts 11, 12, 13, 14, 19, 22, 23, 24, 28 of Mawlamyainggyun Township, all these having half their land mortgaged. Tract 28 with 52 per cent. mortgaged is one of the tracts now coming under original settlement. As is commonly the case the tracts of high land-values are those in which large areas are encumbered but the usual explanation of extravagance where there is credit is wide of the mark; it is natural that in these tracts purchasers having insufficient capital should have to mortgage the land they buy in order to meet its high purchase-price. The abstract at the end of Statement 18 shows that 37 per cent. of the money borrowed on mortgage is devoted directly to investment in land or permanent goods for agricultural purposes, only 38 per cent. of the loans went to "unproductive purposes" which include settlement of earlier debts of which probably at least 37 per cent. again were due to purchase of land or permanent improvements, so that at least a half of all the money may be assumed to have been devoted to these objects. The high percentage of 14 is assigned to recurrent cultivation and subsistence expenses, but all the difficulties in classifying the utilisations of loans which were noticed in Chapter II in the discussion of indebtedness apply here too, and the conditions of war-time have affected this figure even more than most.

178. The estimate of 2,80,000 acres or 61 per cent. of all the paddy land in the settlement area which was mentioned when dealing with the area held by non-agriculturists indicates at once the importance of tenancies. The statistics relating to the areas let are given in Statement 5, which has been amplified somewhat beyond its usual scope but gives the usual particulars in its first four lines. The Land Records Department ignores tenancies in which there is a special relation between the landlord and tenant, and this statement, being based upon the Land Records Department's figures, ignores those too. The total area shown as let on rents determined upon a purely commercial basis in 1917-18 is 243,963 acres or 51.2 per cent. of the whole. The highest proportion is in Tract 13 (see Map III) with 80 per cent. and Tract II with 78 per cent. and Tract 22 with 70 per cent. All these are small tracts in odd corners; more important are the high 65 per cent. in Tract 12 which occupies an extensive and important area in the Mawlamyainggyun and Wakema Townships, the 60 per cent. in Tract 14 which adjoins Tract 12 on the north, and the 62, 63, 65, 57 per cent. in Tracts 18, 19, 23, 24 respectively, all of which adjoin Tract 12 on the east and south and are associated with it (except Tract 24) in the one Tract I under the current settlement which was arranged in 1902-03. Tracts 9 and 17 and 25 have quite ordinary figures of about 30 to 35 per cent., and it may be noticed that of these both Tracts 9 and 25 have a sterile soil while 17 is badly flooded; but it is to be noted also that the percentage in

Tract 17 has been growing rapidly. Tracts 8, 26 and 29 have percentages of 19, 18 and 14 respectively, which differ only a little from the 17 per cent of area found to fall into the first four classes in the table of descriptions of landlords given earlier in this chapter; Tract 29 is a newly colonised area now coming under settlement for the first time and naturally has less than the normal proportion of land let through the cause that the owner is physically unable to work it. The other tract of original settlement (28) which lies between Tracts 23 and 29 and is intermediate in character both as regards physical conditions and the age of its cultivation has 41 per cent rented (The figures for Tract 27 are of doubtful value, but the tract consists only of a few isolated kwins and is of no importance) Statement 5, however, gives not only the area rented in 1917-18 but its growth since 1902-03. In the settlement area as a whole the percentage let has increased by over one-half in these fifteen years, the absolute area having practically doubled. Generally the tracts of high percentage of rented area were the same in 1902-03 as in 1917-18 and even their order in this respect has hardly changed. Tract 23 which had 28 per cent rented in 1902-03 and 65 in 1917-18 is an exception, but in 1902-03 this was just entering upon colonisation and was in about the same condition as Tract 29 is now; it is safe to infer that Tracts 28 and 29 will tend towards the present condition of Tract 23 if present economic conditions continue as their physical conditions closely resemble those of Tract 23. So far as the records at intervals of five years can show the principal increase in the area rented took place between 1902-03 and 1907-08, but some tracts increased more in the next quinquennium, a few increased during the war-years. The last increase is due largely to the failure of indebted owners to make ends meet with a burden of interest and a poor paddy market; they have had to sell to non-agriculturists who then increased the rented area. For the preceding ten years various reasons have been given. In some cases it has been said that a similar process led to the sale of land as a result of the burden of the land-revenue rates, and in a few tracts this has possibly been true of some persons. But where rents have risen at the same time this can hardly have been the general cause. The newness of conditions and the influx of colonists have been disturbing influences which invalidate a purely economic interpretation. In 1902-03 a large area was occupied by men who had come as colonists to start new holdings, most of these were in the prime of life when they came and would grow too old to work their land at much the same time. The great period of colonisation was probably between 1890 and 1900 and accordingly there would have been little land rented in 1900, but there would be a large number of men hitherto cultivating who would want to retire and live upon rents by about 1905. Successful pioneers would by that time have accumulated excess lands, non-agriculturist trading with a rapidly increasing population would have had time to establish themselves. There was at first a lack of tenants but it was not serious; the unsuccessful pioneers were there to work as much land as they had surrendered, and a constant stream of new immigrants flowed in and forced up rents by competing for land. Under these conditions a large increase in the rented area was inevitable.

179. Agriculturist owners of every race naturally have all their land near their homes; they could not watch the conduct of tenants in distant land at the same time as they are cultivating their own land. The figures of the Land Records Department given in the table near the beginning of paragraph 169 show the proportion of land in the hands of non-agriculturist occupiers resident within or beyond the charge of the revenue surveyor in whose charge the land is situated. This definition of "resident" is possibly the best for the Land Records Department, but in the Settlement enquiry into tenancies the residence of each landlord and tenant was classified as "near" or "far" according as the return journey between it and the land concerned could or could not be performed on any one day without selecting special day for convenient tides. This is the practical definition of cultivators; it depends upon means of communication as well as distance and avoids making the artificial distinction of non-resident when the land and resident though

quite close are on opposite sides of a charge boundary "Near" thus includes all

	Landlords' Residences.		Tenants' Residences			
	Landlords	Acres.	Near.		Far.	
			Tenants.	Acres.	Tenants.	Acres.
Near	9,381	186,032	9,314	184,547	67	1,485
Far	1,301	34,425	1,282	33,060	19	465
Total	10,682	220,457	10,596	218,507	86	1,950

those described as "resident" in the Land Records Department and more besides. Every tendency in which conditions were normal is included in the figures, but those which for any reason had to be excluded from the Statement

16 relating to rents have been excluded Each landlord was counted once for each separate parcel of land he let. Seven-eighths of the landlords are resident "near" their land The residences of tenants were defined as their residences when not actually engaged in cultivation or harvesting. In a few cases "far" tenants and their landlords would be omitted from the record because neither they nor their landlord was present when the record was made; but these omissions cannot be very numerous and the figures show therefore how entirely negligible is the number of tenants who work land at such a distance from their permanent homes that they cannot perform the return journey to them in a day. Tenants clearly are practically always local men whether the landlord lives near or far away

180. The last line in the table of paragraph 170 showing the status of landlords may also be taken to give with fair accuracy the relative importance of landlords of each race in the settlement area Expressed as percentages the proportions of leases and acres

Races of Landlords.

	Burman.	Karen.	Indian
Persons	70	19	11
Acres	67	18	15

related to Burma, Karen and Indian landlords are as shown in the margin here For races of cultivating owners no figures are available; it is not permissible to assume that the proportions examined for any of the settlement statistics are equal to the proportions of owners or tenants in each tract From the statistics relating to tenancies it is possible to extract figures relating to the races of landlords and tenants and the correlation between these Unfortunately the record in the first year was not tabulated so extensively as for the areas subsequently dealt with, Burmans and Karens not being divided, so that for the whole settlement area the figures can be given only as in the second table which however covers all the tenancies in which a true market rent was paid. This was basis of 10,682 tenancies covering 220,457 acres is so large that proportions deduced from it may be taken to be true of the whole class of tenancies. It will be observed that Indians form one-ninth of all the tenants

landlords and tenants and the correlation between these

Race of Landlord and Tenant.

Race of Landlord.	Tenant.		
	Burman or Karen	Indian.	All
Burman or Karen	8,261	1,223	9,484
Indian	672	526	1,198
All	8,933	1,749	10,682

and take nearly half the tenancies from Indian landlords but only a little over one-seventh of those from Burman or Karen landlords, showing a distinct tendency for Indian tenants and landlords to be associated This is not due to any antagonism between Burmans and Indians but chiefly to the greater attraction arising from similarity of language and culture and partly to the immigration of Indians who have followed from the same locality and Indian landlord whose success has come to their ears and who was perhaps a close companion in childhood, or have come over as labourers and, gaining the confidence of their employer, have been raised to the status of tenants as his estate grew wider.

181. For the balance of the settlement area, after the four tracts numbered 14 to 17 in Map III and the two tracts of original settlement, 28 and 29, have been cut out, more detailed figures are available as shown in the third table.

Landlord.	Tenants.			
	Burman.	Karen.	Indian.	All
Burman ...	3,595	460	766	4,830
Karen ...	497	1,101	229	1,827
Indian ...	401	45	416	872
All ..	4,493	1,615	1,411	7,529

The attraction between Karen landlords and Karen tenants is clearly indicated when the proportion of Karens to Burmans in the district is remembered. Karen landlords in fact will often let to a Karen tenant rather than a Burman even at a slightly

reduced rent; and this seems to be due chiefly to their greater care in selecting tenants and a great unwillingness to let to strangers rather than to racial feeling. No doubt there is some subconscious attraction for a Karen tenant arising from the better understanding of his mind, but the Karen landlord professes himself equally ready to let to Burmans if they are equally reliable. The Karen tenant, however, has the advantage of belonging to the same hamlet and of being better known to the landlord through the general clamishness of Karen settlements.

182. An enquiry into the capital possessed by tenants was made whilst collecting records of rents. For this purpose each tenant was placed in one of four classes, P, Q, R, S.

Tenants who were free from debt at the beginning of the season and were able to go through the cultivating season right up to harvest without borrowing were placed in class P, those who were free from debt at the beginning of the season but borrowed during the season to meet either the cost of living or the cost of cultivation and yet could have contrived without borrowing if they had been able to postpone the payment of the cultivation expenses till harvest time were placed in class Q; tenants who were free from debt at the beginning of the season but could not have contrived without borrowing during the season even if relieved of the expenses of cultivation were placed in class R, class S included all those who were indebted before the cultivating season began. In this enquiry debts secured upon land or cattle were ignored, so too were debts of trifling amounts like four or five rupees incurred by credit purchases while the grain was on the threshing-floor but not yet

	P.	Q.	R.	S.	All.
Burman	6	25	39	40	100
Karen	11	21	31	37	100
Indian	5	49	19	27	100
All Races	6	29	28	37	100

ready to sell; money borrowed to make advances to labourers on account of wages not really due till harvest were also ignored because they are really debts of the labourers. New assessment Tracts 14 to 17 and 28 and 29 were not included in this enquiry. For 6,735 tenants in other tracts the result

was as shown in the margin where the percentage of each race in each class is exhibited. Karen tenants are proportionally twice as numerous as Burmans in the richest class P, but there is not much to choose in the two lowest classes R and S. Indian tenants have the best average standard as one-half are in class Q. Some caution is needed in using the above table. For instance, the expense of feeding labourers during the season tends to increase class S a little and reduce R; while class Q includes people as well off as those of class P but borrowing because they have undertaken to cultivate a large area. But it is believed that these errors have comparatively small effect on the whole and that, taken broadly, the table gives a fair general view of the economic condition of the tenants.

183. A record was also made of the number of tenants in each class who were

Class.	Per 1,000.
P	1
Q	28
R	19
S	8
Burman	30
Karen	6
Indian	30
All	18.6

led to mortgage their standing crop; the numbers per thousand who mortgaged their crop were found to be as in the margin. The figures are small, but they are affected by the practice of executing the "cooly-chôk" agreements which are described in a later paragraph.

184. Related to these enquiries was an enquiry through the same area into

Cattle owed.		Burman	Karen.	Indian.	All races.
1	None ..	33	42	38	36
2	One head (mortgaged) ...	4	2	2	3
3	One yoke (mortgaged) ..	11	6	8	9
4	One head ...	6	8	3	6
5	One yoke ...	28	28	21	27
6	More than one yoke ...	18	14	28	19
7	Total ...	100	100	100	100
8	Average cattle per head class 6 above.	4.2	4.0	4.6	4.3

the number of cattle owned by tenants, these forming usually the principal piece of property of men of this class. The table shows the percentage of tenants of each and of all races in each of six grades. Somewhat unexpectedly Karens have a larger proportion of tenants without cattle than the other races and also a smaller proportion of tenants with more than one yoke.

185. Attention has already been drawn to the statistics relating to rented areas which are contained in Statement 5. That statement also gives other particulars relating to tenancies, but as usual a further enquiry was made by the settlement party, some of the results of which are exhibited in Statement 16. The party examined as many tenancies as it could, omitting only those for which, through the absence of the parties or similar cause, reliable particulars could not be obtained. For tabulation in Statement 16 all those in which the rent was not fixed on a purely commercial basis were also excluded; the number of tenancies tabulated there was accordingly reduced to 10,682 covering 220,457 acres; but as this represents 94 per cent. of the total are recorded by the Land Records Department as rented under the same conditions the basis of Statement 16 is peculiarly wide. In all this wide field, however, were met only five contracts on any other basis than that of a fixed rent payable in cash or in paddy; these were regarded as abnormal and omitted from the tabulation.

186. It may be said therefore that only two kinds of tenancy are known in the settlement area:—fixed cash and fixed produce tenancies; and, as is shown by the abstract at the end of Statement 16, the latter kind forms more than 99 per cent. of the whole whether measured by tenancies or by area. The proportion of fixed produce tenancies is overwhelming also in each single tract, being nearly always 99 per cent. and only falling as low as 96 or 97 in three cases. This preponderance of fixed produce tenancies is a very desirable state of affairs and it is to be hoped that the custom of fixing rents in cash will not grow. Some persons, misled probably by a false analogy between barter and rents paid in kind, have rashly suggested that the contrary is desirable. But a rent fixed in produce relieves the tenant, who is the poorer party to the contract, of so much of the risk of the market price. He does not get windfalls from good markets; but it is of far greater importance to the poor man that he should avoid the pinch of bad markets.

187. All tenancy contracts are for one season only, and generally they are made by simple oral agreement. But if the landlord has any doubt about the tenant's solvency or character, or if either the ordinary residence of himself or of the tenant is at a distance from the land, he may ask for a written contract to be made or for security to be given. As a rule the only security available is personal security, so this is the kind almost invariably given. It is apparently largely out

of the practice of giving personal security that the practice of subletting has developed which will be described later. The third column of the marginal table shows the number of tenants per thousand in each economic class and of each race who gave security and indicates that taking all tenants together nearly 6 per cent. give security, Indian tenants giving security much more frequently than Burmans or Karens. The same table shows in the second column the number of cases per thousand in which a written contract is made, including those already shown in a former table in which the contract is a mortgage of the crop made after part of the term of the tenancy has run. Further notes upon written contracts will be made in a subsequent paragraph.

Race or Classes of Tenant.	Per thousand	
	Written Contract	Security.
P	64	26
O	186	80
R	141	64
S	136	41
Burman	120	38
Karen	51	25
Indian	329	152
All	149	58

188 One result of the practice of making agreements for tenancies for only one year at a time is that tenants do nothing to "keep up" the land; they have not sufficient interest in it to trouble about improvements or even maintenance, and many take no care to prevent dams and other works falling into disrepair, not even warning the landlord. Repairs to embankments are carried out by the landlord at the request of the tenant as part of the agreement, occasionally new embankments are made by the tenant on a small scale if a large immediate reward is assured, and of course trifling matters requiring attention during the cultivating season are dealt with by the tenant.

189. The rent is always paid at the harvest at the end of the tenancy, and if it is paid as paddy it is generally delivered upon the tenant's threshing-floor, but in a small number of cases, perhaps five per cent, the tenant agrees to deliver it at some other place at his own expense or to pay for measuring it; usually then the cost of delivering is not above four per cent of its value. No agreements to render any other services to landlords are ever made. Land revenue is paid by the landlord in the great majority of cases, but in a small proportion it is paid by the tenant. Occasionally tenants are asked to sell the rent-paddy together with their own and to give the landlord the value received; usually this practice occurs where the landlord lives at some distance or perhaps in an area where prices are less favourable. Tenants generally give the rent in *kauklat apyu* or *ngasen* paddy if they grow any of this, reserving the more valuable *kaukgyi* (*midon*) varieties for sale; they also tend to thresh less carefully when all their paddy is destined to be paid out as rent (or in other payments in kind) than when they are likely to sell. For these reasons there is in some places a special price for rent-paddy rather lower than for other paddy. The basket used to measure rent is often a little larger than that generally used to measure paddy being sold in the locality, if the latter is 129 or 130 milk-tins in capacity the former will be perhaps 132. It is extremely rare for any agreement about the size of the measuring basket to be made when the tenancy is being arranged, and soreness is some times caused when the landlord uses an unexpectedly large basket; but this is not a common event because the landlord's reputation is worth too much to him.

190 Reductions of the agreed rent on account of a poor harvest are made in most parts; but in the greater part of the Mawlamyainggyun and the south of Wakema Township and near Wakema Town reductions in the ordinary sense are rare. Karens make reductions more readily than others, especially to Karen tenants, probably because they have generally a closer racial contact with agriculture than others. In the Mawlamyainggyun Township and in the south of Wakema Township where reductions of rent are rarely made, it is not uncommon to allow the tenant some respite in the payment of the rent, if there is any real difficulty, by allowing a part of it to stand over till the next season, when he may, with a better crop, be able to pay it off. The total amount thus postponed in the year of the settlement enquiry for each tract in the 10,682 tenancies recorded in

Statement 16 was 29,124 baskets of paddy and Rs. 90 cash. Sometimes the harsher landlords turn the postponed rent into a cash debt at interest, but that is not the usual procedure. In the second year it is possible that the outstandings are cleared off or at least a part of them. If not, the next step of the landlord depends largely upon the tenant's character and the reasons for the default. Sometimes a reduction of the rent is allowed, and a lease for a third season given, so that the tenant has still another chance to pay off; but there is never an extension beyond three years and two is the usual limit. At the end of the second year the landlord usually takes the whole rent due to him, including the balance left over from the first year as the first charge on the harvest. From the balance, hire of cattle and labour are paid, getting *pro-rata* payments if there is not enough for full payment—but the ploughing labourers have probably taken their full pay as a *sahapè* advance months before and only threshers and cattle-owner stand to lose. Even the threshers, however, have generally taken steps to avoid risk. The cattle-owner may be the landlord and in such a case most probably is so, but he has the cattle-owner's status for this part of the transaction. If there is any balance the landlord seizes what he can and any cattle or other property available in satisfaction of debts incurred by the tenant, these generally being owed to the landlord, and writes off the remainder as a bad debt telling the tenant he does not wish to meet him again; the tenant moves south to increase the competition for tenancies in the newer areas where his failure is unknown and he has not to compete against tenants well known in the locality as he must in an older tract. The total amount of debt written off for the 10,682 tenants covered by Statement 16 was 1,640 baskets of paddy and Rs. 11,683; but it must be remembered that both this and the figures for postponement of the rent depend essentially upon the season. Amongst all the tenants examined only .60 baskets of paddy were recorded as paid up on account of postponed rent from the year preceding that of the enquiry, this figure being peculiarly small because of the poor markets of 1917 and 1918. As a rule the whole of this programme is not filled; the tenant who becomes aware about November or December that he will be unable to meet the outstanding rent of the previous year as well as the new debts of the current year makes over the standing crop amicably to the landlord and leaves the latter to make what he can out of it after paying for cattle and harvest labour. As the cattle were generally hired in such cases from the landlord there is generally no difficulty about this. If all the cultivating labour has not yet been paid the tenant generally has a little balance due to him and uses it to pay all labour up to date. If the landlord lives far away or is harsh the tenant will probably omit to discuss the situation with him and simply abscond. In a few cases the tenant behaves really dishonestly by selling secretly some of the first threshed grain (sweeping it out from under the straw and replacing the sheaves) or using it to pay other debts and then informing the landlord that the balance is the whole harvest but not enough to meet all claims; or by concealing the fact that he is deeply indebted to another who in collusion with the tenant secures a decree in the Civil Court and attaches the harvest. These and the cases of absconding are all unusual, but they form the majority of the tenancy cases which come to the notice of lawyers and those judicial officers who learn of rural affairs from lawyers and townsmen; and the result has been exaggerated reports of the dishonesty of tenants. As will appear in the next section, dealing with the amount paid as rent, there is a tenancy for more dishonest tenants to be found in the areas of newest cultivation. Even there if two cases have occurred within a few miles in the course of two or three years landlords pull long faces as they describe the difficulties of their position. The suggestion made in a report to Government in 1917 that 60 per cent. of the tenants "default" is merely ludicrous; no agricultural community could persist if such conditions held. Landlords too are generally honest and rarely can be said to oppress the tenants as individuals. The whole tenant class is badly off on account of the high rents it pays; but in that both tenants and landlords are in the grip of competition and no charge of oppression can be levied against an individual landlord who takes no more than the market rate of rent. Landlords as a class charge no more interest on the loans they make to their tenants and charge no more for the hire of cattle which they lend to their tenants than do other people; the suggestions of the contrary which were made

recently by a judicial officer were entirely mistaken. On the contrary the landlord is often more gentle with the tenant than another creditor would be, because he knows the whole of the affairs of the debtor and often can see the advantage of nursing rather than crushing him. Landlords who can afford it commonly insist upon the tenant having no debts to other persons making it a first condition that he shall borrow from them enough to pay off all other debts, the local metaphor for the process, taken from the carrying of loads on a yoke, is "to change shoulders." But no advantage is taken of this to charge high interest, the whole matter arises from the fear that another creditor will seize the tenant's crop and the landlord will have too short notice to be able to sue for the rent and get a decree for attachment of the part due as rent. No landlord can afford to get a bad name, he has to pay the revenue and often the interest on borrowed capital invested in the land and would be ruined if tenants were to boycott him.

191 There are a certain number of cases of subtenancies to be found in the settlement area. In the first year of the settlement operations, in which Tracts 14 to 17, 28 and 29 (that is the northern globe of Wakèma Township and the area of original settlement) were treated, no systematic record of these was made but only a few cases were noticed. In the second and third years a record was kept and in the Myaungmya, Mawlamyainggyun and Labutta Townships and in the south of Wakèma Township it was found that 8 per cent of all tenants sublet part or all of the land they hired. The proportion of principal tenants associated with subtenants was as two is to three. Some few principal tenants cut off two or three blocks to sublet but usually only one block is cut off. The average area retained by the principal tenants was nineteen acres which is approximately the average area worked by one person of any description. These subtenancies arise in various ways. A tenant who finds himself unable to cultivate—say through sickness of himself or in his family or through affairs which call him away to other parts—may obtain the permission of the landlord to transfer to another tenant. But the landlord may prefer to retain the security of the original tenants, promise, he may not know the new tenant or be able at the time to secure a substitute to his liking, and the tenant himself may be a tenant of long standing who wishes to retain a lien upon the tenancy, in all such cases the original tenant generally sublets to the new tenant, and invariably arranges the same terms as he himself received; practically the principal tenant is a surety for the working subtenant. Similarly when a landlord **A** is not sure of the character of a new applicant **B** for permission to work his land he may follow either of two plans. He may let direct to the applicant **B** but demand security, which, as already stated, will generally be furnished in the form of a person acceptable to the landlord who stands surety; or he may let the land to a third person **C** who sublets to **B**. It seems to be almost invariable for **C** to charge **B** the same rent as he pays, and the only motive of **C** is generally the same motive of friendship which leads men to stand surety. Indeed the principal distinction between this case and the case in which the tenant gives security is found when the intermediary dies during the season; otherwise there is no real difference in practice. The intermediary **C** sometimes gets a little advantage by being able to insist upon being the sole creditor of the tenant, but close enquiry has failed to discover any complaints of unfair treatment. **C**'s advantage is that his capital has a certain investment for the season in **B**'s cultivation, he charges no specially high interest but he has no difficulty in placing his money, and in many cases it is probable that his main motive lies in this. This type of subtenancy arises without racial differences, but an impression was received (unchecked by any statistics) that it often arose where landlord and tenant were of different races. An Indian who has done well and invited a friend to Burma to copy his example almost invariably must take the tenancy himself and sublet to his friend; the landlord is probably unable to converse with the actual worker and naturally declines to have anything to do with him, although he is quite pleased to let to the successful Indian who has naturally acquired some Burmese and is of some substance and will cause no anxiety about the eventual payment of the rent. Other cases of subtenancies arise when a landlord, perhaps living at a distance, wishes to relieve himself of trouble by letting all his land in one block; a cultivator who

specially desires that land because it is near his house or the land of his relations or for some other reason may take it, although it is too large for him, and sublets the excess. Sometimes this approaches the surety type when a tenant with considerable capital rents a large block and sublets to friends who through lack of capital could not obtain a tenancy but can be trusted by him because he will himself be working close beside them all the season in the part he retains for himself. In practically every case of a subtenancy, however it arises the difference between the total rents paid by the workers and the rent paid by the principal tenant is fairly in proportion to the area retained by the latter to work himself; occasionally a small difference of five or ten baskets on a holding was found, but generally it may safely be said that the principal tenant makes no profit on the rent. Revenue surveyors ignore subtenancies in their records and there seems to be no harm in this at present. In Statement 16 also, based on records of the settlement party, only principal tenancies are included.

192 The statistics of rents collected by the settlement staff are tabulated in Statement 16 where special entries are made for those
 Rents. amongst the tabulated holdings which contain only land of one soil-class. For fixed-produce tenancies the paddy rent has been converted to cash at the price assumed for the purpose of calculating assessment rates in Chapter XIV below. It would be better for most purposes to use the higher prices used for valuing paddy in the enquiry into the cost of living, taking the curve of nine years' averages as a basis, and this would increase the cash equivalents shown by approximately one-eighth or one-ninth. Statement 5 also gives a record of rents paid in the same class of tenancies in which there is a purely commercial relation between the landlord and tenant; as already explained this statement is based upon the records of the Land Records Department and it will be seen that it gives the average rents (which are practically those of fixed-produce tenancies) at intervals of five years. It is usual to quote the cash equivalent of these rents as calculated by the Land Records Department on the basis of the current price of paddy at the harvest of the cultivating season represented; but since this basis of conversion varies so widely from year to year discussion of the variation of rent is rendered difficult. Statement 5 therefore has been made to show also the rent per acre in terms of paddy, the rents of the few fixed-cash tenancies being changed to paddy at the price for the year but having no influence upon the averages afterwards calculated. This matter is of particular importance in the present case because the price of 1902-03 was about Rs 24 above that of the preceding and Rs 14 above that of the following year, the year 1907-08 had the highest prices on record except the phenomenal year 1911-12; while 1917-18 had a very poor market indeed under war conditions. From the tenant's point of view the paddy payment is the important thing, and it is better therefore to compare rents, as the people do themselves, by paddy measurements and not by their accidental cash values*. The rents stated by the people have been converted to measures in Government baskets according to the ordinary size of the basket used for selling paddy; the variations from this of the basket used to measure rent could not be followed and would in any case have made no appreciable differences in the average rents per acre and are indeed counterbalanced by the chaffier quality. Rents are found to have increased steadily in the last fifteen years in practically every tract with the exception of flooded Tract 17 where there has been a large decrease. The one all-embracing explanation of the rise is in the increased demand for land on hire. Until about 1908 it was customary for landlords to seek tenants; before that tenants had landlords competing for their favours. Since about 1908 no landlord has needed to seek a tenant; in April he has always half a dozen of them in his doorway competing for permission to hire his land. Only one result could occur. The tenants have kept down their standard of living at a low grade and have paid as an increase in rent all the extra income they have received by improvement of land or rise of paddy prices. Throughout the greater part of the

* For some purposes cash values are the main interest, e.g. when discussing rents from the landlord's point of view. Then the curve of nine-years' averages furnishes the best price for any year. The curves of paddy prices averaged in groups of four, five, six, seven, eight, or nine years first gets moderately smooth at seven or eight years. Nine years is a convenient period because it has a middle year.

area settled in 1902-03—which was then chiefly newly-cultivated land—there was a rise of rent by five baskets per *kwet* (3.75 per acre) immediately on the introduction of the settlement the landlords said they must charge it to cover the increase in revenue and the tenants acquiesced. Of course the increase of rent was larger than the increase of revenue, but that would not vitiate the argument. Five or six years later there was again a sharp rise of equal amount ascribed by some to the introduction of full rates of revenue instead of the intermediate rates hitherto in force. Since that time there has been a steady growth until about 1915, when in some parts near Mawlamyainggyun a small decrease occurred in the rents of best holdings which came down from 30 to 28 baskets per *kwet* of 1.32 acres. Such at least is the local account. The figures of Statement 5 do not bear it out entirely, but that is due to the extension of cultivation into interior land in recent years. Tracts 12, 13, 18, 19, 23 to 26 which represent this area all show the increase between 1902-03 and 1907-08. It is difficult to trace the changes in rents precisely in Statement 5 because the average quality of the land represented in each tract has changed in a way which should be shown by the entries in line 5 of the statement in the tracts just mentioned the classification, however is faulty because surveyors have assessed new extensions of cultivation too highly. Similarly it is difficult to compare the rents given in Statements 5 and 16 though their general trend from tract to tract is the same in both statements. The relation of rent to revenue was suggested in one or two places during the operations described in this report, when increases of rent were mentioned as occurring on account of the presence of the settlement party and the prospect of an increase of revenue. As an example of this the rent in good holdings near Pyaleik (Tract 231.) was raised from 25 to 28 village baskets per *kwet* of 1.32 acres. But it is doubtful if that can be maintained. Several landlords near Mawlamyainggyun expressed the opinion as early as 1916 or 1917, before the full effect of the war had been felt that rents would have to fall a little and it is probable that the Pyaleik rents will fall to their former level of 25 baskets. It is noticeable that rents are not highest in the best tracts. The highest rent met was 31 baskets per *kwet* obtained by a local Burmese widow in a holding of mixed first and second class land near Pyaleik. There is a strong tendency for rents to be higher in proportion to the value of the harvest in the newer lands to the south than in the older lands even of better quality. In these older lands the population has begun to settle down, and tenants are men who have lived in the locality for some time and acquired a reputation for honesty and reliability. They compete amongst themselves for tenancies, but their offers of rent are tempered by the need to maintain the customary standard of living. In the tracts further south the tenants are newer colonists and the owners often live at some little distance in the more settled neighbourhoods the latter would rather have tenants paying a certain rent even if it were slightly less than they get, but they have little opportunity for choosing tenants and accordingly take the highest offers although these are sometimes made by people who afterwards fail to pay the rent but, having lived for a year on loans from the landlord, run off and leave him the standing crop or part of the threshed grain. There is thus a tendency for tenants of inferior character to accumulate in the newer tracts and for higher rents to be paid there because of the greater risk involved for the landlord. Another reason is an inflated optimism about the new lands to the south which is generally prevalent. The greater proximity of new land which the tenants might open to cultivation has no effect in reducing rents, new land is for men with capital and does not affect the market for leases. The proximity of superior land at lower rent does not affect the matter because it is practically monopolised by local men whose character is known to its owners. Moreover there is a natural viscosity in the flow of tenants to another neighbourhood however severely the drawbacks of the one neighbourhood may be felt, and the tenants who might hope to establish themselves in the tracts of higher character are always hoping that as time goes on and still newer lands are opened up further south their own locality will improve the same way as they saw conditions improve in this respect in the older tracts which have all been through the same history of increasing honesty and reliability of the tenants.

193 The rents recorded in Statement 5 are those found in the revenue surveyors' records which should be those actually paid. In Statement 16 two

columns for full and reduced rents are shown. "Full" rents are those agreed upon at the beginning of the tenancy; "reduced" rents are those actually paid at harvest after reduction if any by the landlord on account of defects in the yield. It will be seen that, as stated in the section of this chapter which dealt with the conditions of tenancies, in very few cases was there any large reduction made; rents in Statement 16 have been calculated to the nearest rupee and occasionally small decimal reductions in the averages were found. Most of the cases in which Statement 16 shows a reduction were due to a change from above to below a half-rupee, and would perhaps have been better to show decimals of a rupee although that is contrary to the usual practice. All the rents in Statement 16 have been carefully purged of amounts outstanding from previous years, but they include in full amounts held over for subsequent payment although some of these will not actually be paid; particular care has been taken to distinguish reductions of rent from the writing off of debts. The boundaries of every piece of land concerned were carefully inspected on the ground so that areas should be worked out correctly. Where the tenant handed over the rent at any place other than the threshing-floor the value of the service of transporting the rent was added to the rent even if the tenant moved the grain with his own cart and boat and really incurred no expense. Similarly all charges incurred by the tenant for the registration or the stamping of a document in connection with the tenancy have been included. The rents shown in Statement 16 therefore are the expense incurred by the tenant for the use of the land; the amount received by the landlord would be less by the miscellaneous expenses, which do not however amount to anything considerable in the average per acre.

194. If the common practice of comparing the rent with the gross produce is to be followed the ratio is approximately three-eighths (37 per cent) on the average but rises to 45 per cent in the most fertile tracts in which the average quality of the land is high. But these figures convey no real meaning because the proportion of the outturn which is consumed by the cost of cultivation is so important. For those who are disposed to regard them, however, the figures are given by lines 4 and 7 of Statement 5. For tracts 14 and 16 in which a special study of the rents and outturns was made (*vide* Appendix C) the rents and normal outturns were tabulated and the line of regression determined. Writing r for the rent and p for the outturn of a holding the results obtained in Tracts 14 and 16 respectively for normal holdings (selected as described in Appendix C) were $r = 0.3406p + 25.4$ and $r = 0.3753p + 10.75$, these results may be written approximately as $r = 30 + p/3$ and $r = 11 + 3p/8$.

195. The settlement party recorded the number of years for which each examined tenant whose rent was fixed on a commercial basis had worked the same land continuously. Duration of Tenancies. In making this record an interruption of the tenancy was disregarded if it was due to some reason such as sickness beyond the control of both the tenant and the landlord while these two parties had had the will to continue the tenancy all the time. The results for each tract and for the whole settlement area are shown in Statement 16. Taking the settlement area as a whole 18 per cent of the tenants with 22 per cent of the rented land had worked the same land for over five years continuously, while 44 per cent of the tenants with 39 per cent. of the land had worked for only the one season the land they worked in the year of the enquiry.

196. Figures representing the same matter and also the proportion of landlords who had let their land for over five years have been extracted from the Land Records Department's registers and are shown in lines 11 and 12 of Statement 5 for comparison with any figures which may be obtained in any future enquiry. It should be noted that the Land Records Department counts each landlord once for this purpose for each holding separately assessed and each tenant once in each kwin if he works land in two kwins; but this causes little real difference in the figures and it is difficult to believe that the surveyors' figure of only 13 per cent. for the tenants working the same land for over five years can differ so widely from the settlement figure because the latter overlooked temporary interruptions.

197. According to custom the settlement party noted for each tenant whether he had formerly been the owner of the land he worked; and in addition recorded whether he had surrendered all title in the land or whether he had the right, under for instance a usufructuary mortgage or a conditional sale, to claim its return to him. (On the latter question the tenant's opinion was usually recorded; the landlord was sometimes present but in some cases might have given a different opinion.) The statistics have been tabulated in Statement 16 but the enquiry appears to be of little interest in Burma where land is so readily transferred from one owner to another and tenants change so readily from one holding to another. And the interest is particularly small in a district in which so many new colonists reside and so many people give up one piece of land to go and carve out a larger holding in newer land to the south. There would be interest in an enquiry into the number of tenants who had formerly been owners of sufficient land to afford them a livelihood especially if the tabulation showed how they came to lose the status of owner and whether there had been any particular series of years in which such transitions had been particularly numerous. An experiment in the last year of the settlement showed that this enquiry would present considerable difficulties in practice and had to be dropped; but if some of the duplication by settlement parties in Statements 16, 17 and 18 of part of the statistics obtained in Statements 5, 6, 7 from the registers of the Land Records Department were dispensed with, this and other enquiries yielding fresh information not obtainable elsewhere could be developed.

198. Statistics of the frequency of written tenancy contracts were given in paragraph 187 dealing with the conditions of tenancies. The written contract is often not made before the tenancy begins but at some later time when the tenant has accumulated a considerable amount of indebtedness. If it is made at the beginning of the season it is generally a straightforward agreement as to the amount of the rent with stipulations that the same shall be properly threshed and be paid at a certain place and perhaps that no other disbursements may be made from the harvest before the rent is paid unless the landlord's permission to do so has been obtained. But whether this last stipulation is made or not and even when only an oral agreement is made, local custom recognises that rent has the first claim upon the harvest. Sometimes the document includes an agreement by the tenant that he will not avail himself of the provisions of the Civil Procedure Code which protect the seed-grain and *wunsa* from attachment and sale; sometimes there is included an agreement that the tenant in the event of violation of the agreement "offers himself to be prosecuted criminally" and "has agreed to a penalty under sections 403, 406 or 420 of the Indian Penal Code." If the document is drawn up after the season has commenced and because the tenant's debts have grown large—and especially if he is suspected by the landlord to be deeply in debt to some other person—it nearly always contains these conditions relating to the Civil Procedure Code and the Indian Penal Code and often takes the form of a "cooly-chòk." This term is commonly applied in several parts of the district to any tenancy agreement which includes the conditions just mentioned; and several officers, having been informed that an agreement was a cooly-chòk have supposed without further enquiry that it really was such, and have accordingly supposed that the cooly-chòk is common. In the genuine cooly-chòk, however, the "tenant," although he perhaps originally began the cultivation with an ordinary tenant's oral agreement, expressly declares that the crop is the property of the landlord and that he is cultivating the land for wages with the status of "agent or servant" of the owner; and there is usually a definite declaration by the cultivator that he comes under the Workman's Breach of Contract Act, XIII of 1859. It will be observed that instead of letting the landlord be entitled to a stated rent and the cultivator to an uncertain balance depending on the harvest, the cooly-chòk awards the cultivator a fixed payment and leaves the landlord the aleatorial balance. It will be evident at once that the *kaukbin-ap* system of employing labour is easily confused with the cooly-chòk "tenancy." At first there seems to be no distinction between the cooly-chòk and the *kyaukbin-ap* system when the

person who ploughed and planted is engaged again to reap and thresh. But there is the distinction that "kaukbin-ap" is arranged for two separate parts of the season while the cooly-chòk is for the whole; and in practice—though this is not logically essential—there are the differences (1) that the cooly-chòk involves a change of status from tenant to labourer after cultivation with the former status has already made some progress and (2) that this change of status is only nominal as a rule. If the tenant appears to be trying to overreach him in any way the landlord will endeavour to enforce the cooly-chòk in the Civil Court; but this is very rare and the usual procedure is to ignore the cooly-chòk and settle up on the threshing-floor in accordance with the original oral tenancy agreement. The real object of the cooly-chòk is to secure the crop or its proceeds against attachment by some creditor other than the landlord. Such a creditor might arrange to file a suit so as to get judgment passed just at harvest and attach and sell the crop before the landlord got his dues. The landlords also consider that with a cooly-chòk they get a stronger hold upon the mind of the tenant. Sometimes there is an understanding between the landlord and tenant when the oral agreement as to the tenancy is made that there will be a demand later for the execution of a cooly-chòk; indeed this seems to be so in the majority of cooly-chòk cases. The cooly-chòk appears to belong to Pyapôn District and to be invading Myaungmya District slowly; it is really doubtful if it will get any firm hold. Its importance has been exaggerated by judicial officers because lawyers who own land at a distance from their homes often make use of it, and because the misuse of the term to describe a different kind of agreement has not been appreciated. It is in fact never safe to discuss tenancy agreements by class-names without first investigating their terms. At present amongst written tenancy agreements the plain agreement to let land at a certain rent is the commonest and after that come the same agreement with various conditions added. The mortgage of the crop is an alternative to the cooly-chòk if debts are growing large; and the cooly-chòk is probably slightly the more frequent. But one has generally to search for some time to find cooly-chòk and they are by no means common. So far as the area of the present settlement is concerned the greater proportion of them are found close to Wakèma and Mawlamyainggyun Towns, chiefly the latter; this is because they are chiefly affected by town-bred landlords, especially lawyers and tradesmen with no agricultural traditions, who have invested the savings for their old age and other capital in land near the town in which they work. A detail which is otherwise of no real significance indicates how uncommon the cooly-chòk is. Printed forms are generally used for the documents and these are to be obtained from the various presses in Rangoon; in all of them the same error occurs of dating the Workman's Breach of Contract Act in 1852 instead of 1859, thus showing how all are really copies of one original and how little the practice of using them has spread. Stamp and registration expenses on all tenancy contracts are borne by the tenant. Quarrels about the terms of an oral agreement for a tenancy are very rare, and there appears to be no reason for supposing that the growth of a custom of making written agreements would have any advantages while the system of annual tenancies continues.

199. The main difficulty in discussing tenants is that there are so many grades of them. There are a few tenants who have considerable capital but do not invest it in the land; these of course are generally in better circumstances than most cultivating owners, especially when the latter have mortgaged their land, and occasionally they transfer themselves to the class of owners. At the other end of the scale are tenants absolutely without capital, locally known as "one-pot-one-mat" men who are really in most cases men striving to leave the ranks of the labourers for one or other of the reasons given in Chapter II, but generally either because they want to have a house of their own or because they find themselves coming near the description of too old at forty, when it will become increasingly difficult to get employment as labourers. These often work as labourers in years when they fail to get a tenancy; but in the end when they reach middle age and become liable to much fever if hired as ploughmen working amongst deep mud in hot sun and cold rain,

they probably subside into a mean existence as casual labourers or herdsmen or non-agricultural labourers or all these at once. There are then the intermediate tenants who, having a little capital, possibly a yoke of oxen, and a settled home, rent the same holding for several years on end or at least succeed every year in obtaining a tenancy in the immediate neighbourhood of their homes. These probably include half the tenants, and if they own cattle manage generally to sustain a moderate standard of life though they must pinch somewhat towards the end of the rains and are liable to severe disaster from a bad harvest, a low market, or cattle disease, and can generally afford only a mat and thatch house; while if they have to hire cattle there is need for very stringent economy all through the year. There is practically no tendency for labourers to enter the ranks of these tenants of small capital or for such tenants to become owners; but like owners all tenants may slip down to the ranks of labourers, neither of the two classes of tenants of small capital can maintain as high a standard of life as is desirable, although no doubt they could be squeezed for still more rent if there were enough of them to take up all the land without recourse to the one-pot-one-mat men; but no remedy in the form of protective legislation in the ordinary sense is desirable. The troubles of the tenants are not due to any vices of the landlords and (with occasional exceptions—there are black sheep in every flock) tenants do not complain of their treatment by individual landlords; both classes are in the grip of competition, and the tenants though unable to express themselves on the matter are complaining against the general organisation of their industry on a basis of individual competition. A landlord of course could forego part of the rent, but the competition of tenants has forced up the purchase price as well as the rent of land, and the landlord who has bought in recent years does not get such a large profit out of rent as he would for instance out of money-lending. Protective legislation in general is entirely unsuitable for such conditions; none could be devised which would not be evaded, because landlords and tenants would conspire in endeavours to evade it. The written contracts in which tenants renounce all claim to the protection afforded by the Civil Procedure Code are a manifestation of this whether the renunciations can be legally enforced or not. The principal force at work is the excessive competition amongst tenants. The remedy is to reduce this competition, and two main courses are open. One is to reduce the number of competitors and the other is to organise those who remain. Co-operative credit amongst cultivating owners while serving its own purpose amongst that class can reduce additions to the ranks of tenants from above; colonisation of new lands on co-operative lines can draw off some tenants; the balanced development of remunerative non-agricultural industries would attract the one-pot-one-mat men from the tenant ranks and have a still more important influence by raising the general conception of the standard of life, so that the remaining tenants, being generally already of the classes of higher standard of living and infected with the same conception, would if suitably organised refrain from driving up the rents so quickly. To avoid introducing new evils of industrial exploitation a co-operative basis is needed for this development too. The institution at present of Co-operative Credit Societies amongst tenants would merely transfer all savings of interest to rent; the introduction of more profitable crops or varieties of paddy would have exactly the same effect of raising rent. All profit from either of these improvements would go to the rent receiving classes, and both should be delayed until it is possible to organise the tenants in a trade union or in such societies as would take paddy cultivation in hand collectively, giving the landlords in exchange for the growth of rent promised by their present economic pull over the tenants a certainty of income and freedom from worry which they would certainly appreciate because they already recognise these advantages in distributing their investments between money-lending and land-owning. Models are probably to be found in the recent experiments of Co-operative Societies in the *latifondi* of Sicily and in Lombardy and the Venetian provinces. These methods might possibly lead to ownership of the land by the unions of tenants, but there is no need to aim at that; it will probably be better to aim first at good conditions for tenants as such. The whole problem bristles with difficulties and constantly presents the aspect of the old problem of the priority of the egg and the chicken. It is possible that

Co-operative Credit Societies would have to be instituted amongst tenants as a first step towards functional organisation, the resulting increase of rents being accepted as the price of the advance and being discouraged as much as possible by simultaneous endeavours to raise the standard of living, and perhaps by so organising the societies as to give comparatively little financial relief but rather to use the savings on interest collectively for purposes connected with these endeavours. The institution of trade unions would incidentally simplify many of the problems of land-revenue administration; such unions could not exist amongst tenants alone but must be reflected in the organisation of landlords, owners and labourers; with such unions modifications of land-revenue assessments in bad years could be arranged and probably a large part of the work now performed by settlement parties could be transferred to them. There is perhaps one piece of legislation worth consideration, and this contrary to the usual expectations would aim directly at the protection of the landlord; but indirectly it would be of assistance to tenants too. If landlords were held to have a title in the crop up to the amount of the rent (limited to the average rate for similar land in the neighbourhood or double the land revenue), so that they would have no fear of other creditors seizing the tenant's crop with a decree so well-timed that the landlord is left helpless, most of the dishonest men amongst the tenants would have to find other occupations and the remaining tenants would profit by the greater confidence they would command.

200 In an area in which so large a part is worked by tenants and rents are fixed so much by purely economic competition the over-repeated enquiry whether the assessments could not be based upon rental values is bound to be made.

Rental Values as a Basis of Assessments.

There are cogent reasons for using this basis if possible. But there are also difficulties. Where assessments are made upon estates and there is the same long-standing relation between the land-owning class and the tenant-groups who occupy each estate as in parts of India the matter is quite different from the problem in Burma of discovering rates of assessment *per acre* graduated according to the quality of the land. The first problem is to catch the hare, to discover the rental values per acre. But this living hare evades us. We can only get the average rate over holdings containing various proportions of land of each grade, the hare is mined and potted and unrecognizable. Appendix C shows that this difficulty can perhaps be surmounted if sufficient time and labour can be spared for it. The deduction of acre-values of rents from the statistics presents no such difficulty there as the evaluation of outturns. But there are other difficulties. The word "rent" in this report and in all the proposals to base assessments upon rent means the payment made to the owner of land for the use of it. The "economic rent" is a different conception and may or may not be the same as the competitive rent actually paid. But even the actual payment takes on different aspects according as it is viewed from the standpoint of the tenant or of the owner. Such trifling questions as the value of services rendered by the tenant without incurring actual expense may be settled for the moment by adding their value to the payment actually made. But if assessments are to be based upon rental values they must presumably view rents from the stand-point of the rent-receiver who will pay the revenue. Then there arises the question of gross rent and net rent. The whole sum received by the landlord is not profit. Years of bad harvests and reduced rent can be averaged, but an allowance must also be made for the risks involved in the failure of the tenant through sickness or death or other misfortune or through misconduct. The landlord keeps these risks low by supervising the tenant, visiting the land at intervals during the season, but this involves expense and labour and time for which allowance must be made. The landlord has also the expense of repairing bunds and dams, training streams, making fences to keep out wild animals, in some parts of the delta his holding is liable to be eroded clean away and insurance against this as well as the foregoing expenses might reasonably be required by landlords as a deduction from the "rent" used as a basis for calculating land-revenue. In fact, just as, when the revenue is assessed with regard to the conditions of cultivating owners, the *net-produce* of cultivation is taken as a basis for the rates, so when

revenue is assessed with regard to the conditions of landlords the *net produce* of land-renting must be taken as a basis. But although so much land is rented the proportion in the hands of cultivating owners is not negligible these occupy 35 per cent of the land in the most extensively rented tract of large size and 49 per cent in all tracts together and one might well say peradventure there be 10 per cent of them. Rates of revenue suitable to the rents at present obtained would be far too high to be paid by cultivating owners, so many of whom are indebted, without causing them to suffer what is perhaps the most serious evil which could be imposed upon such an important class of the community, namely, a considerable depreciation of their standard of living. It is impossible indeed to assess both classes at once fairly and so that a due proportion of the profit received is devoted to social purposes through payment as revenue. The proper course is to assess with reference to the circumstances of cultivating owners and to assist tenants to improve their standard of living by claiming a larger share of the produce. The demand of higher revenue by Government is almost certain to be met in part by a reduction in the tenants' standard of living as well as in that of owners. Since the most important matter is the proper distribution of the burden amongst the different soil classes and tracts, and the relative rents for these are not known and in any case are irrelevant to cultivating owners, no use will be made of rental values to determine assessments in this report.

CHAPTER V—THE EXPIRING SETTLEMENT

201 The area for which proposals for a new settlement will be made in this report consists of five parts shown in Map I at the end of the report and in the accompanying table in which the column headed 'Year' shows the year in which were carried out the

No.	Year.	Settlement Officer.	Revenue Department Notification fixing rates.		Period of Settlement		Approximate cultivated area in 1918 Acres.	
			No.	Date.	From 1st July	To 30th June.		
1	1902-03	Mr MacKenna	298	23rd June 1904	1904	1919*	215,662	
2	1903-04	Mr Lowry ...	454	18th September 1905	1905	1920	211,162	
3	1904-05	Mr. Lowry	502	4th September 1906	1906	1921	805	
4	1905-06	Lieutenant-Colonel Ormiston.	26	25th April 1910 ..	1907	1920	37,985	
5	Area not previously settled							18,315
						Total Area	433,929	

* Extended for one year to 30th June 1920.

settlement operations on which the orders of Government fixing the current assessment-rates were based. The settlement of Mr MacKenna in the first area shown in the table was an original settlement, the others were first revisions of original settlements. The second area was originally settled by Mr Mathews in 1868-89 and the fourth by the same officer in 1890-91, both these original settlements of Mr Mathews are illustrated in Map II at the end of this report. The third area in the table is the trifling area of one kwin (Treingyun) which was transferred from the Ma-ubin District to the Myaungmya District on the 28th March 1918 and is too small to warrant further notice in this chapter. The kwin will be seen in the extreme north-east corner of Map I.

202. A detailed account of the settlements based upon Mr Mathews' report is not required here because the conditions have changed so widely since they expired. The notes shown on Map II give sufficient information with regard to paddy lands. The rate for gardens was fixed at Rs 25 per acre throughout the area treated in

1888-89 and at Rs. 3.0 throughout that of 1890-91; while the rate for miscellaneous cultivation was fixed at Rs. 2 in both cases. No special rates were fixed for dhani or betel, and the district authorities applied the garden-rate to both of these crops. It is interesting to note that in both of these areas the "lasting-power" of the soil was considered as a factor in discussing assessment capacity and was represented in the earlier settlement by twelve years and eight years in first and second-class soils respectively, this was of course an endeavour to import into the assessment-system the ideas expressed in the soil-development curves K-1 and K-2 shown in Chapter III of this report. In the area of 1888-89 the cost of cultivation was estimated at Rs. 4 per acre and in that of 1890-91 at Rs. 7 to Rs. 8 in the southern and Rs. 9 in the northern part. Both these estimates took account only of out-of-pocket expenses and neither played any part in determining the rates of assessment.

203. The area shown as Tracts I, II and IV on Map I was the larger part of an area including part of the Paypôn District which underwent original settlement at the hands of Mr. MacKenna in 1902-03. In much of the area cultivation was new and sparse, while the maps showed little detail and were of doubtful quality. Soil-classification (with two classes) had therefore to be on broad lines, and this need was emphasised by the wide extent which the Settlement Officer had to cover in a single season; but the broadness was carried to excess and was always achieved by the severity which ignores bad patches. Three tracts were formed in the part of the area which lay in the Myaungmya District. Tract I occupied three-quarters of the whole and Tract IV most of the remainder; Tract III lay entirely outside the Myaungmya District and Tract II was a comparatively small area on the south-west of Tract I and separated from that tract for lighter assessment as being less developed. The price was assumed to be Rs. 80, 75 and 70 per 100 local baskets in Tracts I, II and IV respectively, equivalent to about Rs. 77, 72 and 67 per 100 Government baskets, but either the Settlement Officer's assumed outturns were stated in terms of local baskets or he confused the prices and reckoned Rs. 80, 75 and 70 as prices in Government baskets. The error was of no importance, as although fractions of the cultivated net produce were mentioned by the Settlement Officer the first class rate of Rs. 5 was proposed for Tract I not on that basis but so as to be the highest in Lower Burma, and the other rates were then adjusted in relation to that. The theory behind this was the somewhat strange idea, fashionable at that time, that a rate of assessment so high that a non-cultivating owner could not afford to own land for letting would be beneficial to cultivating owners who had to pay the same rate. Details of the rates imposed are shown on Map I. The out-of-pocket expenses of cultivation were estimated to average Rs. 10.02, 13.26, 4.94, and 11.19 per acre in Tracts I, II, IV and the whole area, respectively (including the parts in Pyapôn District in forming these averages) and the sanctioned rates on this basis approximate to one-sixth of the net produce in Tracts I and IV and to one-fourth in Tract II. Estimates of the cost of living compiled on the same lines as were the above figures for the cost of cultivation were Rs. 8.8, 5.16, 7.25 and 7.27. The result of applying the sanctioned rates forthwith in 1903 to the part of the area which was

Revenue from Paddy Land before and after 1902-03 Settlement.

Tract.		I	II.	IV.	All.
		Rs.	Rs.	Rs.	Rs.
Total Revenue.	Before	2,45,499	24,326	16,359	2,86,184
	After	5,92,911	42,733	16,355	6,51,999
	Percentage increase	141	76	Nil	128
	Acres (1902-03)	1,31,426	12,682	10,446	1,54,554
Average per acre.	Before	1.87	1.92	1.57	1.85
	After	4.51	3.37	1.57	4.22
	A	3.95	...	...	3.77
	B	4.71	3.74	2.09	4.33

included in the Myaungmya District and is concerned in the present report would have been the amounts of revenue shown in lines 1, 2, 5 and 6 of the marginal table (fallow land taken at two annas). Intermediate rates were applied to moderate the harshness of these large enhancements in Tract I so

that no field should be assessed for the first five years at more than double its previous revenue but the sting of the enhancement was felt and is still remembered. These intermediate rates reduced the average assessment per acre in this tract (taking the area of 1904-05 and allowing a two-anna rate to a small area of fallow-land) to Rs. 3.95 as shown in line A in the marginal statement. But in 1914-15 the average rates per acre had become those shown in line B and it is important to observe the increase which had taken place above the averages of 1902-03 "after" settlement, two lines higher in the table. The latter were calculated on the assumption that the full sanctioned rates were applied and are in no way affected by the intermediate rates; any difference in the fallow areas for the two years would be negligible in these averages. The increase was entirely due to extensions into new land which were regularly assessed at once by the Land Records Department at first-class rates. The surveyors generally had an excuse for this because their instructions are that they should assess extensions in a way consistent with the Settlement Officer's classification of adjoining land, since they found so frequently that the whole of a kwin, save perhaps a small strip partially occupied by field-huts along the high river bank, had been classified as first class by the Settlement Officer they naturally applied the first class rate to all extensions. But the higher revenue officers of the district cannot be absolved of responsibility for omitting to note and prevent the hardship and mischief of these assessments. In the earlier years the extensions were made into *kanaso* land which was often of better quality than the higher land of which much of that cultivated at the time of the settlement consisted, but even so the expense of clearing and bunding it and the small harvests of the initial years demanded consideration. In the later years the evil has been even greater in the case of entirely new holdings because the new land has generally been on still lower levels involving greater expense, and yielding permanently a much poorer harvest. Even the soil-classification effected by the settlement party was harsh. It was not possible for the Settlement Officer (who was deprived of his European assistant for the greater part of the season) to supervise work in so wide an area effectively when he was provided only with a small launch and no houseboat in a region in which camping on shore was quite impossible and virulent fever abounded. The mosquito theory of malaria was then new, and even now the villagers do not know it, by them the methods of the soil-classifiers, who classified in many cases (they say) according to oral accounts given by cultivators and others summoned from large distances to centres like Mawlamyanggyun convenient for the classifiers, are ascribed to fear not of mosquitoes but of crocodiles. Naturally many assesses did not attend; and, to avoid suspicion of corruption, the classifiers would always assign land to the first class in case of doubt. The kwins which were checked by the Settlement Officer or his European assistants could be recognised during the work of revising the classification for this settlement by the correlation of quality and soil-class. But in kwins checked by the Burman Assistant Settlement Officer there was a marked difference; and the impression I obtained in discussing with him in 1918 the work he did in 1903 was that he had misunderstood his instructions, taking an incidental remark that he would find more first than second class land to be an intimation that land should only be admitted grudgingly to the second class. In 1918 when land which he now owns in this area was being reclassified he asked for a classification very different from that he assigned to it in 1903. The local view of the soil-classification of this area is that practically all the land is assessed at one uniform rate and this—which is perfectly true in many of the kwins of newer cultivation—is felt as an injustice and a hardship and was the subject of frequent complaint during the present operations. More detailed discussion of the effect of all this upon the present settlement will appear in Chapter XIV.

204. A rate of Rs. 2.5 was imposed upon all garden-land and crop-rates of Rs. 10 and Rs. 5 respectively were fixed for dhani; but these were all of trifling importance (from the point of view of the revenue) compared with paddy land which is associated about 99.3 per cent. of the revenue in this area.

205. The period of this settlement should have expired, according to the original notification on the 30th June 1919, but it had to be extended for one year

because the work of revision which is the basis of this report could not be completed until some months after that date. Application was made for extension of the period prescribed in the original notification, but the Financial Commissioner decided that formal extension of the period by notification was unnecessary.

206 The area settled by Mr. Mathews in 1888-89 was resettled by Mr. Lowry in 1903-04. Again only two soil-classes were used, but a considerable amount of revision of the tracting took place. As in Mr. Mathews' original settlement it was found impracticable to treat the portion in the Wakèma Township in continuous tracts, and it will appear in Chapter VII that the same experience has been met in the second revision. The changes in the tracting do not seem very large at the first comparison of Maps I and II; but if regard is paid to the assumed outturns and the rates imposed it will be seen that in Myaungmya Township the change was revolutionary, the order of the tracts in the fertility-scale being changed. In the Wakèma Township the changes were more complex but are found to be nearly as strongly marked on detailed examination. Only out-of-pocket expenses were considered in estimating the cost of cultivation which was reckoned at Rs. 4 in the Myaungmya and Rs. 4.5 in the Wakèma Township; this difference of eight annas was negligible and it may fairly be said that this assumption was the same as that of 1888-89. The cost of living was estimated at about Rs. 11.5 per acre in the Wakèma Township and Rs. 8.65 in the Myaungmya Township*. The rates fixed for paddy-land were based upon one-eighth of the net produce in the Wakèma Township and one-ninth in the Myaungmya Township and are shown in the schedule upon Map I. Crop-rates of Rs. 5 and 10 per acre were fixed for dhani and betel respectively. For other gardens the kwins were ranged in two classes independent of the paddy-tracts. The superior class included the kwins near the Myaungmya domes and around Myaungmya Town and most of the kwins along the bank of the Zaletaw, Shwelaung and Irrawaddy Rivers and was assessed at Rs. 3 per acre for orchards and Rs. 2.5 for *yas*, the rates in the kwins of the inferior class were fixed eight annas lower. According to the areas given by Mr. Lowry for 1903-04 and on the assumption that all the land was assessed at full rates (and without reductions for fallow) the sanctioned rates yielded increases of 47 and 34 per cent. respectively in the total revenue from the Wakèma and Myaungmya portions and 42 per cent. in the total revenue of the whole area, the average assessment per acre rising from Rs. 2.06 to Rs. 2.93. Intermediate rates were imposed in some kwins for five years; but in 1905-06 when the settlement came into force the area had increased from 153,500 to 169,500 acres, and in spite of intermediate rates the revenue, after allowing for fallows, was Rs. 4,86,000 instead of the Rs. 4,50,000 calculated on the 1903-04 area at full rates. The actual initial rate per acre was thus Rs. 2.86, and in 1914-15, in spite of the termination of the intermediate rates after the fifth year, this figure had fallen to Rs. 2.66 owing to the extensions into inferior land.

207. Lieutenant-Colonel Ormiston revised in 1905-06 the settlement made by Mr. Mathews in 1890-91 of the four circles on the eastern side of the Kyaikpi River taking this region as part of a larger area lying chiefly in the Ma-ubin and Pyapōn Districts. Three soil-tracts and two price-tracts combining to form six assessment-tracts gave a somewhat kaleidoscopic result in this small corner of just fifty kwins with an area of 32,967 acres. Two soil-classes were formed and the schedule on Map I of this report furnishes details of the rates on paddy land. The out-of-pocket expenses of cultivation amounted to Rs. 11.97 per acre as deduced from the combined statistics in all the Myaungmya portion of the area, but the assumptions made when calculating assessment-rates varied from Rs. 10.45 to Rs. 17.18. The cost of living averaged Rs. 9.81 per acre. The rates finally adopted were approximately one-sixth of the net produce. The

* These figures are taken from Statement VIb of Mr. Lowry's report; the figures used by him in paragraph 36 to calculate net produce in Myaungmya Township appear to have ignored the value of the home grown rice consumed.

revenue of the paddy-land in all the fifty kwins was increased by 29 per cent. Intermediate rates were granted to relieve the enhancement but their period was limited to two years instead of the usual five. Rates for other cultivation were Rs. 3 for gardens, Rs. 2.5 for miscellaneous *yas*, Rs. 10 for betel-gardens and Rs. 5 for dhani, but dhani does not grow in the kwins concerned here, and the whole of the revenue apart from paddy land amounted only to Rs 1,553 per annum.

208. For convenience of reference the appended table has been constructed to show various numerical quantities related to the current and expiring settlements. Reductions to intermediate rates have been neglected in calculating the enhancements for item 6 but not in items 8 and 9. In items 7, 8 and 9 the letter P represents the first year of the application of the settlements now expiring, in each case two years later than the year shown in the heading, Q represents the year in which the classification was revised during the current operations. (See paragraph 227 of this report) In item 7 the unit of area is 100 acres, in item 8 the unit of revenue is Rs 100 and the cess is not included.

Tract. (1)	1902-03.				1903-04			1905-06.	
	I (2)	II (3)	IV (4)	All (5)	C. D. L. (6)	B. W. X Y (7)	All. (8)	All. (9)	
1. Price of paddy ...	80	75	70	.	78	82	..	85.895	
2. Cost of cultivation per acre ..	10.02	13.26	4.94	11.19	4.0	4.5	...	11.97	
3. Cost of living per acre ..	8.88	5.16	7.25	7.27	8.65	11.50	..	9.81	
4. Cost of living per family ..	194	216	144	...	189	181	...	302	
5. Assessment fraction ...	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	...	$\frac{1}{9}$	$\frac{1}{3}$	...	$\frac{1}{8}$	
6. Percentage enhancement of revenue.	Paddy land	141	76	Nil	128	32	50	44	29
	All land	140	76	6	127	34	47	42	29
7. Occupied area (unit is 100 acres).	P	1,395	149	113	1,058	620	1,075	1,094	354
	1914-15	1,548	197	254	1,999	836	1,250	1,986	383
	Q	...	...	...	2,146	902	1,187	2,091	378
8. Total Revenue (unit is Rs. 100).	P	5,491	507†	249	6,247†	1,537	3,321	4,858	1,045
	1914-15	7,258	736	540	8,634	1,781	3,514	5,295	1,089
	Q	...	...	...	8,923	1,711	3,580	5,491	1,012
9. Average revenue per acre Rs.	P	3.93	3.40†	2.20	3.77†	2.48	3.09	2.86	2.95
	1914-15	4.76	3.74	2.12	4.32	2.13	3.06	2.66	2.84
	Q	..	..	..	4.16	2.12	3.01	2.63	2.68

* Strictly the fraction was 0.115.

† Estimates, figures given in settlement forecast of 1914 were erroneous.

209. In all the current settlements only two soil-classes were used to effect the classification, and the inevitable result has been a disproportionate burden upon the worst land. When a single holding has a fair assortment of all qualities of land the division into two classes can be made to give a fair average result if the lower class is valued low enough. But in the practical problem of soil-classification there must be some continuity of the lines bounding the soil-classes, each holding cannot be averaged independently. Moreover, as the range of quality which can be included in the first class of soils is limited, the range left for the second class is very wide; and when the assumptions for outturns and the deduced revenue rates are made uniform over so wide a range there must either be oppression towards the lower limit or unnecessary sacrifice of revenue towards the higher limit of the range. The former alternative was favoured; indeed the Financial

General Characteristic of the Current Settlements.

Commissioner in 1904 endeavoured to raise the valuation of all second class land and in 1905 declared that the assumed outturns were very low. But even in 1903-04 some of the low land which should have formed a third class had been taken into cultivation, and the future development of harshness ought to have been foreseen. And at least the local officers should have noted that development as it took place and should have asked for sanction to apply a third class rate to new extensions during the currency of the settlement. The harshness of the classification awarded by surveyors to extensions was the subject of comment in paragraph 35 of Mr Lowry's report of 1903-04 and Government passed orders in paragraph 10 of the Resolution on that report that all extensions in Tracts W, X and Y should be assessed in the second class and gave a clear warning against severe classification in Tracts B, C, D, E but the general order of paragraph 480 of the Land Records Manual has been allowed to override these instructions. Fortunately the extensions have generally been classified as second class in this 1903-04 area, but attention to these orders would perhaps have prevented the harsh classification of extensions in the 1902-03 area too. The result has been that although the revenue rates have remained constant the revenue demand upon holdings has increased more than their productivity has been increased by the extension of area, in fact the revenue, on an average, has risen with the price of paddy, and, as will appear in Chapter XIV, the increase of revenue which might have been expected to result from this present revision has been largely anticipated by the high assessment of the poorer lands. In a sense a sliding scale of assessments varying with the price of paddy has been actually put into practice save that the fall in price during the war was not accompanied by a reduction of assessments.

210 The assessment of fallow lands is governed by Rule 77 under the Land and Revenue Act and the Financial Commissioner's Notification No. 126, dated the 31st August 1914, the latter directing that (subject to a limit in the case of land held by a non-cultivator) all fallow land in certain areas should be assessed at two annas per acre. The part of the settlement area notified in this connection included most of the lowest parts of the north-east of Wakema Township, nearly the whole of Myaungmya Township, the western part of Labutta Township and four circles of Mawlamyainggyun Township and one kwin there besides. The inclusion of Tagundaing Circle of Mawlamyainggyun Township is somewhat extraordinary if one is justified in concluding from the general lines of the selection that areas particularly liable to need for fallowing for physical reasons should be included. But the exclusion of all but one kwin of Ywathit Circle, all Duntabe Maudon and Hngetyawgyaung Circles and other parts is even stranger, while Pyaleik, Kazaung and Hlaingbon Circles which had much new land and were not yet completely bunded to protect from the rivers ought clearly to have been included, particularly as access to the Township Officer to apply for a fallow-rate was difficult for them. Since these three circles were taken into the new Labutta Township in 1918 the headmen have been allowed to pay the revenue to the Mawlamyainggyun Township Officer because the journey to Labutta was so long and required the passage through so much lonely jungle; but the equal difficulties of cultivators seeking a fallow-rate have been overlooked. Moreover, as "circle" is understood to mean a surveyor's charge, and the boundaries of these charges have been altered two or three times since the notification issued, it is improbable that the orders are being applied in the right kwins any longer. With the proviso that not more than one-sixth of the area held by a non-cultivator in any kwin may receive the benefit of it, there is no valid reason why the order should not be extended to the whole of the district, and I recommend that this be done. If, however, the tradition of restriction is to be continued the kwins at present included in the proposed assessment tracts 12M and 12W (Map III) can be excluded and all the rest included; this would involve the exclusion of Tagundaing Circle which is at present included.

211. The settlement party in its examination of each kwin corrected on its own maps the fallow-marking which it had copied from the Land Records maps

of the same year when the assessment roll had been completed. Few cases of worked land marked fallow came to light and no cases in which the two-anna rate had been improperly granted came to my notice, but there were a considerable number of errors of omission. Some of these may have been corrected by surveyors after the assessment season but that is unlikely. The errors in fallow marking were not reported in detail in the Errata Statements submitted kwin by kwin to the Land Records Department, but the Deputy Commissioner's notice was drawn to the matter in 1917 by a general note. In the marginal statement are shown

Description	Acres	
	A	B
Two-anna rate	4,259	4,146
Fallow at full rates marked by surveyor	2,110	918
Fallow not marked by surveyor (assessed as worked land)	3,644	1,322
Total worked area	97,286	34,131

some figures relating solely to paddy land compiled for part of the area examined in 1917. In column A are shown the figures for surveyors' charges 37 to 45 inclusive and 47, constituting the large northern bulk of Wake's Township less charge 46 in which there would be some complications in the figures, in column B are the figures for a part of the same area consisting of the

sum of surveyors' charges 41, 43, 44, 45 the whole of which are entitled to the benefit of the Financial Commissioner's notification. I am afraid there can be no doubt that a great part of the area in the third line of the statement was entitled to a two-anna rate. It is probable that not much of that part was land cultivated by small owners, it will have been chiefly land cultivated by tenants who did not trouble to call the attention of the surveyor to the fallowing because they had not to pay the revenue. But it must not be overlooked that the Deputy Commissioner of 1910 stated in his annual revenue report that there had been numerous revenue recovery sales in 1909-10 on account of fallows.

212 By a curious oversight all the officers of the district since 1914 have overlooked the fact that the Financial Commissioner's notification applied to all land, and the surveyors were found to be confining it to paddy-land. The principal sufferers were the cultivators of miscellaneous produce in certain flooded parts of North Kyōnbauk Circle, in 1918 when I drew the attention of the Deputy Commissioner to the error the assessment-roll had just been completed, but it was then reconstructed in accordance with the notification. The district officers should give attention to this matter in the miscellaneous cultivation of other parts, particularly in the Myaungmya and Labutta Townships.

213 It is doubtful what rates have been authorized for assessed land in villages since the 9th September 1899 because to such land sections 23 and 24 of the Land Revenue Act have not since that date applied and all the notifications of assessment rates other than those for land within towns have been issued under these sections. All assessments upon "village-land" were therefore made without authority from the above date until the issue on the 12th May 1903 of the Financial Commissioner's Notification No. 45 of that year directing that the rates of assessment in land governed by the Town and Village Lands Act should be those authorised for the same land at the time that Act came into force. Since that Act came into force in all "village-land" on the 9th September 1899 the rates thus authorised were those of the settlements of 1889-90 or 1890-91 or those prescribed for areas not under settlement. On the 3rd of May 1912 the Financial Commissioner's Notification No. 45 of 1903 was entirely superseded by his Notification No. 68 of 1912 which substituted only a schedule of rates for certain towns and ignored village-lands completely. Since May 1912, therefore, it seems that no rates whatsoever have been authorised for "village land". The rates actually applied in each village however, have been those authorised for the time being under the Land and Revenue Act for those parts of kwin containing the village which are governed by that Act, and these rates have been applied not only from 1903 to 1912 when different rates were authorised for "village-land" but also before 1903 and since 1912 when there were no authorised rates for "village-land" at all.

214. The term *village* is not defined in the Land and Revenue Act, but it is defined in the Town and Village Lands Act as an area *appropriated* to dwelling places not included within the limits of a town. If the term *appropriated* does not necessarily imply specific orders of Government assigning the land to the particular purpose but covers also occupation by a group of houses commonly recognised as a village or hamlet, the assessed area in which the assessments have been illegal throughout the current settlements is considerable. The alternative proposition is that the sites of villages are not village-land, and that outside the towns there is no provision for dwelling places anywhere in the settlement area. This would not be a satisfactory state of affairs, and perhaps the fact that no assessment is made upon small house-sites in the numerous blocks which are regarded by revenue surveyors as villages (and are not parts of holdings which were assessed to revenue before the village was established) is against this view. But on the other hand larger sites included in the same block and assessed to revenue are assessed also to the ten per cent. cess under the Burma District Cesses and Rural Police Act, 1880, and this is illegal if the revenue is assessed under the Town and Village Lands Act because the Act of 1880 authorises the cess only in the case of land-revenue assessed under the Land and Revenue Act of 1876. The exemption of the small sites appears, therefore, to be an effect only of the executive orders of the Land Records Manual. The whole matter of the definition and assessment of village-land is in fact in confusion. Land subject to the Town and Village Lands Act should be distinguished on the maps from land subject to the Land and Revenue Act. It is not a question only of the exemption of small sites as of right instead of merely by executive order, and of the addition of the ten per cent. cess in the case of assessed land nor even of the proper rates of revenue to be assessed. The matter of title is different under the two Acts and the Courts at present have no ready means of discovering which Act applies to any particular piece of land. Still more important is the revelation of the insufficiency and generally unsatisfactory nature of the provision for house-sites which would become clear when the enquiries necessary to define the village-sites were undertaken and was pointed out in the report of the settlement of 1903-04 as well as in Chapter I of the present report.

215. As Myaungmya Town was a Municipality on the 9th September 1899 the rates notified after the settlement of 1888-89 became inoperative there on that date and the notification of rates under the Land and Revenue Act following the 1903-04 settlement was also ineffective. The former rates were revived by the Financial Commissioner's Notification No. 45 of 1903, but the assessments, which without authority had continued to be made from 1899 to 1904, were made from 1905 onwards at the revised rates notified for the surrounding rural land. The other towns were constituted as towns in December 1908 by special notification under the Town and Village Lands Act; but as no rates of assessment were then notified for them the proper assessment on each plot depended upon whether it was included in "village-land" or not before that date. If within village-land it should have been assessed both before and after 1908 at the rate in force for it in 1899; if not within "village-land" the meaning of the Financial Commissioner's Notification No. 45 of 1903 was doubtful. The rates prescribed by it were the rates authorised at the time of coming into force of the Town and Village Lands Act; the literal meaning of this is the 9th September 1899, but it is probable that the date of coming into force in the particular area was intended because land which had not been under the Town and Village Lands Act at its last settlement could claim to have the terms of that settlement continued till the expiry of its term. The confusion was cleared up by the Financial Commissioner's Notification No. 68 of 1912 which prescribed for each of the five towns the same system of rates as were authorised in the surrounding rural areas, namely Paddy-tract C and Garden-tract I for Myaungmya, Paddy-tract W and Garden-tract II for Wakema, Paddy-tract X and Garden-tract I for Shwelaung, Tract I of 1902-03 for Mawlamyainggyun and Tract B-II of 1905-06 for Kyaikpi. A question as to the legality of assessments may still be raised in the area of the subsequent extensions of Mawlamyainggyun and Kyaikpi Towns; and particularly in

the latter because part of Kyaikpi Town falls in kwin 1174 (old number) and within Tract C-II and its paddy-land had been assessed accordingly at rates twelve or ten annas per acre lower than those notified by the Financial Commissioner. If any plots in the village included on the western bank of Kyaikpi River are admitted to have been village-land in 1907 the assessments before 1912 were certainly illegal and possibly those since that date; for all plots which were not village-land in 1917 the enhancement according to the notification of 1912 of the rates prescribed in 1910 for a term of thirteen years would have been a breach of the settlement. The Land Records Department cut the Gordian knot by ignoring the notifications of Kyaikpi Town altogether, treating the whole as rural land at the rates prescribed for rural land in 1907 and charging the ten per cent cess on all except leased sites. But as in the case of lands in villages no assessee has ever objected to the assessment of land in Kyaikpi or any other town on the score of its lack of authority

216. Under the authority of the Burma District Cesses and Rural Police Act, 1880, a cess of ten per cent is added to the land-revenue assessed upon all land outside the towns of Myaungmya, Mawlamyaygyun, Wakema and Shwelaung. As noted in the preceding paragraphs the land for which cess is added includes land in "villages" where its legality is doubtful and also the whole of Kyaikpi Town where its illegality is quite clear. The proceeds are credited entirely to the District Cess Fund which is intended to be used for the local purposes of the district

217. The demand remissions and collections of land and tree revenue and the areas occupied in the domain treated in the present report are shown in Statement 2 for each year since 1902-03. The figures given for area in 1902-03 were obtained by deducting from figures for the whole district those calculated in Mr Duffin's Settlement Report of 1910-12 for the remainder of the district and appear, in comparison with the figures of the succeeding years, to be unreliable. Increases in revenue in 1904-05, 1905-06, 1907-08, 1909-10 and 1911-12 were due to the introduction of new settlements or to the expiry of intermediate rates, and these frequent discontinuities in the conditions vitiate the averages for land revenue. The rate per acre matured appears to stand fairly steady near Rs 3 65 in the later years; as however the fallow area appears to be understated the true value of this figure is probably a trifle higher, say Rs 3 70. It should perhaps be explained that the total occupied area shown in Statement 2 differs from that shown in some other statements because the Land Records Department's figures on which it is based include some areas outside supplementary survey; if these areas were omitted the revenue collections would not correspond to the area shown. The area so included amounts to about 19,000 acres

218. The rates of capitation-tax throughout the expiring settlement have been Rs 5 for married men and Rs 2-8-0 for single men everywhere in the settlement area. In calculating the average tax per head the population has been assumed to increase regularly by 3,303 6 per annum between the census of 1901 and 1911 and at 3,450 per annum since. No explanation of the variations in the average tax per head can be given; the ten years' averages from 1902 to 1912 and 1908 to 1918 are both Rs. 0 91 per head

219. Statement 2 at the end of this report shows the total number of processes issued in the whole of the Myaungmya District each year since 1902-03 for the recovery of revenue which had not been paid promptly. This includes processes for the recovery of capitation-tax and fishery-revenue and miscellaneous land-revenue as well as those for the recovery of the land-revenue proper with which settlement operations are concerned. On account of the inclusion of these little discussion of the figures given is required beyond noticing that they are not large enough to justify the heavy labour of separating the class which occurred in connection with

land-revenue proper within the area of the present settlement, particularly as it would probably be impossible to complete the task (Figures were given by Mr. Duffin for the years 1902 to 1910 for the part of the area settled by him in 1910-12 in his report upon the operations leading to that settlement; but he did not indicate the scope of the figures—which appear to cover all kinds of revenue—nor did he state how they are obtained) Even, however, if all the processes shown had been related to the land-revenue proper in the area of the present settlement it could not be said that they were so large as to indicate general harshness of assessment. Unfortunately they cannot be held to prove moderation of assessment but can only be regarded as silent in the matter; because, as everywhere in Lower Burma, the cultivator practically always pays the revenue even if he must mortgage or sell the land to do so. The tradition of the people is to meet the demands of their government either with docility or with despair, and the degree of resistance and loudness of complaint are no index to their feelings.

220. There were three widespread complaints made during the settlement besides those relating to low price realised for the paddy and the high price paid for purchases under war conditions. One concerned the severe assessment of the lowest quality of lands throughout the district owing to the adoption of only two soil-classes at last settlements and will be met by the proposals for revision of the settlement which are to be developed in Part II of this report. The second was the complaint in Mawlamyaingyun Township and in the southern parts of Wakema Township that all land was assessed at Rs 5 per acre without regard to its quality. The third related to the assessment of fallow land at full rates in those parts in which the fallow-rate is granted only upon application to the Township Officer, and in the lands used for miscellaneous cultivation in North Kyōnbauk Circle, and occasionally in *kwins* in which the two anna rate should be granted by the surveyor without application and without reference to higher authority. While, however, the figures of the statement do not prove harshness of assessments there was matter for thought when the Deputy Commissioner in his Land Revenue Report for 1909-10 remarked that in the Myaungnya Township of that time (where half the fallow land of the district was found) much land was left fallow each year owing to the poverty of the soil, and consequently a large area was sold each year by auction for default in payment of revenue. Sales for recovery of revenue were more numerous in the earlier years than they should have been because of a failure to notify resummptions of a previous year to the Land Records Department; the high figures of 1914-15 were due to the unsettlement caused by the German War.

221. Statement 4 shows the course of paddy prices since 1895 at ten representative places distributed about the settlement area. The statement has been compiled from the records of revenue surveyors, and can only be accepted for the general tendency disclosed. This however is shown more clearly by the graph in paragraph 277 in Chapter X, where the course of prices at harvest-time at Rangoon is represented, because on the average local prices have moved nearly parallel to the prices at Rangoon. The settlements of '90-03 and 1903-04 took prices equivalent to a Rangoon price of Rs. 84 and 90 respectively for a basis, and the graph shows that since the 1st July 1904 when the earlier of those settlements came into force the price has always been higher than that assumed. There have been wide variations due to disturbances of the world-market; but, as the curve of the nine years' average shows, the general tendency has been to rise. In the local prices this tendency has been slightly more marked because of the reductions in the cost of transport in recent years, and in some parts because of the improvement in the quality of the paddy. Maps III and IV accompanying this report show the relation between the local prices assumed at last settlement and those taken as a basis for the proposals made in this report.

222. There have been no instances of reclassification of soils during the expiring settlements. Neither has any exemption on account of improvements to the land been granted; indeed the authority for granting such exemption only

Paddy Prices during Expiring Settlement.

Reclassification and Exemptions during the Expiring Settlement.

contemplates refraining from an enhancement of revenue, and it is difficult therefore to see how such an exemption could be given at any time other than at the introduction of a new settlement.

223. It was explained earlier in the chapter that the rise in the price of paddy since last settlements had mitigated the harshness caused by the high assessment of inferior lands. As it is impossible to cultivate with profit a holding entirely composed of third-class land there has commonly been in all except the newest tracts a high and increasing rate of profit on the best land of each holding which enabled the cultivator to pay the revenue on the whole. The revenue upon holdings in fact has practically been steadily increased as the price of paddy has risen. Consequently it is unlikely that the area of extensions has been seriously affected by the system of assessment. But there seem to have been cases in the 1902-03 area of men with inferior holdings who could not support the high assessments during the first few years of the currency of the settlement before the price of paddy had risen considerably; those who took their land over from them in satisfaction of debts were able to make a profit on the same land because of the continued rise in the price of paddy which became more rapid about the sixth or seventh year of the settlement when the weaker cultivators had just had time to succumb.

Influence of Expiring Settlement upon Agriculture.

PART II.—THE NEW SETTLEMENT.

CHAPTER VI.—GENERAL.

224. The grounds for undertaking the settlement operations described in this report were, as stated by Mr. MacKenna (who having in 1903 been the Settlement Officer of a large part of the area had in 1915 become the Deputy Commissioner), that the occupied area had increased by 18 per cent., the price of paddy by 16 per cent. or more, and rents by 50 per cent. apart from the rise in the price of paddy, and that an increase of revenue would be obtained by a revision of the settlement. A sounder reason than all these would have been that on account of the defects in the soil-classification as it stood in 1915 the current settlements were operating inequitably and a redistribution of the revenue demand was necessary.

Ground for undertaking a New Settlement.

225. The work of the settlement began on the 11th November 1916, but for the first month I was still occupied in completing the settlement of the Prome District and had to organise the work in Myaungmya from Prome. Two years were sanctioned for the operations, but it was found that three were necessary; and a further extension of nearly two months until the 31st December 1919 was granted for the Settlement Officer alone for the writing of this report. The work however was completed before the expiry of the time allotted as the date placed with the signature at the end of the report will show.

Duration, Extent, and Method of the Operations.

226. The usual plan of settlement work in Lower Burma was followed in its broad outlines. Pre-settlement Notices were duly issued as recorded later in this chapter. During the harvest fields were selected by members of the party and reaped by villagers under their supervision as described in Chapter XI below to give an experimental basis for estimates of the gross produce. Meanwhile copies were made of the Land Records Department's assessment maps of the current year, and on these were recorded the new soil-classification which was determined in the manner described in the next chapter. While engaged in this work of soil-classification the staff recorded and reported to the Superintendent of Land Records all errors in Land Records work which came to its notice and were not of a purely ephemeral nature, such as errors in tenants' names, crop symbols

or fallow-marking. The two last were corrected on the maps for the purpose of the compilation of statistics in the settlement office, but were not reported to the Land Records Department. A special memorandum was sent by the Settlement Officer in the case of matters of wide application such as the universal failure to allow fallow-rates in other than paddy-land in North Kyônpadôk Circle; and a memorandum on the commonest of the errors, both those included and those not included in the reports sent to the Land Records Department, was sent to the Deputy Commissioner in June 1917. While the work of soil-classification was going on statistics relating to the various matters discussed in this report were collected in the manner described in a later paragraph of this chapter and applications for exemption from enhancement of assessment on account of improvements were dealt with in the manner described in Chapter XVII. Many errors in Land Records work were discovered and reported during the examination of the maps in connection with the tabulation of statistics in the recess.

227. The estimates given in Statement 19 of this report of the revenue demand under the expiring settlement and with the proposed rates are based upon the area cultivated in the year in which soil-classification was effected. The tracts classified each year are shown in the marginal table; but for various reasons, such as resurvey of kwins and revision of the work of earlier seasons, a few kwins in some tracts were really treated in a later year than that shown.

Year.	Tracts
1917	14-17, 28, 29
1918	12, 18, 19, 25
1919	8-11, 20-22, 24, 27.

228. Notices warning the people that settlement operations were to be undertaken were sent to the Deputy Commissioner of Myaungmya, for publication in accordance with Settlement Instructions 127 and 128 in July 1916, five months before the operations began and eight months before soil-classification began, and were published by him in due course. The prescribed form is however objectionable on account of the involved nature of its sentences, and because it falsely promises that the settlement party will check the entries in the maps and registers of the Land Records Department. The party does report such errors as it notices, but that does not justify such a promise. Other objections to the notice arise from its publication in the rains when it is immediately washed off the village notice-board and a great number of the persons to whom it is addressed are living in field-huts or only return to the village at sunset, and are too tired every day with ploughing and planting to spell through such a notice even if they happened to see it in the daylight. Moreover it must be remembered that one-third of the settlement area was classified in 1919, more than two and a half years after the publication of the notices. I regard this notice as worse than useless because it falsely pretends to achieve a desired result. The method used in this settlement to supplement it will be described in Chapter VII. But in addition to that method it would be desirable to add a printed notice to every tax-ticket in the season before the operations begin announcing the revision of the settlement in simple language without references to Revenue Department Notifications and the like, and warning assesseses to watch for notices in the following years.

229. It is regrettable but true that there are a considerable number of people, generally well-informed, who scoff at the statistics presented in the settlement reports of this province. In the settlement work described in this report an endeavour has been made to obtain statistics of genuine value as far as that is possible with the staff available. It has not yet been sufficiently clearly realised that a distinctly higher grade of intelligence and general education is required for the collection of economic statistics than is usually found to prevail in a settlement party. Enquiries similar in many ways to those made during settlement operations in Lower Burma constituted the chief part of the economic survey in the Faridpur District of Bengal to which the late Mr. Jack's "Economic Life in a Bengal District" relates; but on Mr. Jack's staff graduates were employed for the work done here by inspectors

or even clerks. Much can probably be done by teaching and training the present staff, but it is absurd to speak of the training and experience gained by the staff in merely being let loose upon some area or another every successive year with a number of forms to fill up. If a single person sets out to collect with success statistics relating to the complex social and economic phenomena of such a region as is treated in this report, it is necessary for him to set down precisely the rules under which he works and the interpretation given to every term used. But when a number of agents are employed to collect the statistics it is even more important for clear and complete instructions to be in the hands of every one of them. For every statistical form used in this settlement full instructions were issued to every agent; and to avoid errors of copying they were printed. Printing is also necessary for the reason that manuscript instructions are bulky and difficult to read in a bad light; it is also in fact cheaper than manuscript copying and little more expensive than duplicated manuscript copies which are much less easily read and liable therefore to be neglected.* Later, during the rains when the statistics were being tabulated, written instructions were given to the Assistant Settlement Officer who was at the head of each section of the party, and he was held responsible for seeing that all who worked under him complied with them. Statistics relating to tenancies, sales and mortgages were collected by the clerks of the party, and checked by the inspectors; those relating to indebtedness, the cost of cultivation and the cost of living were collected by the inspectors. The basis of this division was that for the clerks' statistics every case met was recorded, while the three latter subjects involve selection of the persons examined and a generally higher grade of intelligence, and the enquiry into the cost of cultivation in particular has such a direct influence in the calculation of assessment-rates; further many of the entries in these forms are related and must be checked one against the other when recording. A check of all the statistics was made by the Assistant Settlement Officer, who also collected additional information of a miscellaneous character. For the first year and a half the clerks visited the kwins first and the inspector later; but afterwards the inspector and two clerks went together, the inspector collecting his own statistics and watching and checking the work of the clerks which was done largely under his eyes. The land concerned in every set of entries was visited and its bounds were beaten by the informant and the recorder together; a list of the survey plots covered was the first essential of every record, no reference whatsoever being made to the holding boundaries recorded on the maps of the Land Records Department except when it was convenient to shorten the list of survey plots by noting that an area differed from a particular holding on the map by the addition or omission of certain plots. Further all numerical entries which were related to the extent of the land, such as outturns, sale-prices or rents, were recorded there on the ground concerned and at the time when the bounds were beaten; only entries which related to persons were permitted to be made afterwards in the village, and no entry of any sort except a person's name might be made before the bounds were beaten. Outturns for the last three years and for a normal year were recorded for every piece of land which entered into any form, and therefore no need arose to collect statistics of outturns in any special form or to check any areas specially for them. For the record of tenancies, sales and mortgages such entries as could safely be left for record in the neighbouring village were made and checked there at midday, the persons concerned being assembled for the purpose. Enquiries into the cost of living were made at the house concerned as was noted in Chapter II; enquiries into indebtedness and cost of cultivation too were often made at the residence of the person examined, but the boundaries of his land were always checked with care. Where the prescribed forms were unsuitable to the conditions of the district they were freely modified; and in particular the serious error in some of them which asks the clerk to record deductions from the facts learned was avoided and heads arranged for record only of those facts, even the simplest arithmetical deductions being left to be

* The fact that the instructions were printed does not imply an opinion that they are universally applicable. On the contrary it is held that each locality enquires its own instructions, and variations may be needed even within one settlement area.

performed in office. Preparatory lectures were given in office and careful practical instructions to all in small groups of three or four was given in the field each season, all the inspectors and some of the clerks being taught by myself personally. Some improvement was probably achieved; the questions asked during the season by some of the more intelligent indicated a better understanding of the work than they had had before; but really marked improvement can only be achieved with a staff of better general education. Particularly is this the case where a selection of persons or things to be examined is required; the less intelligent grades of the party are quite unable to understand this. To the Inspectors and Assistant Settlement Officers lessons on the normal curve of errors, mode and averages were given and illustrated with the aid of a toy-gun which they fired at a paper target, measurements of the height of members of the party and similar obvious examples, with the idea of implanting the idea of a normal and the relation thereto of an average, and showing the effect of statistical treatment of numbers with unbiassed errors and the value of intelligent and honest selection of instances of the phenomenon measured. It seemed to me that there resulted a real improvement in the selection of persons examined for the cost of cultivation and the cost of living; exceptional families with several grown-up sons, or consisting entirely of women or others incapable of agricultural work, or having large wealth and living on a standard far from the normal of the tract ceased to appear in the statistics and a representation of something approximating to the mode has, it is hoped, been obtained. On the importance of proper selection no remarks of mine are required; Dr. Bowley's principle that in enquiries into social phenomena it is necessary to select definite types and tabulate statistics for representative examples of each type is generally accepted. There is only one matter more important than intelligent selection, and that is the proper way of asking the questions required to elicit the required information; and pains were taken to teach this. In particular the enquirers were taught to avoid making any suggestion as to the magnitude of any number they had to record. For the many cases in which the person examined cannot state a definite figure, the enquirers were taught to enable him to state limits within which the correct figure would lie by further enquiry to narrow those limits as far as possible and then to record their mean.

230. "Agricultural Notes" were not recorded in full in Form A in every kwin as required by the Settlement Instructions. If the tracting is valid the notes of all the kwins in a tract should be almost alike; one form for each small tract was therefore recorded and two or three in the largest. Records were however made for individual kwins for the kind and specific gravity of the paddy grown and the cost of marketing. The same system applied to the greater part of "Village Notes" in Form C; but the first few items of this form which have application to an individual village were recorded for villages having a grazing-ground or over a hundred houses or particular interest. In the third year new forms called QA and QC were devised experimentally for the tract notes; these have several defects, but if those are cured will be far more useful than a separate form A for every kwin, the very number of which forbids any considerable use being made of them. All these forms were bound and sent to the District Record Room except the records in form A for individual kwins.

231. In all settlement operations in Burma classified area statements are prepared to show the new soil-class of every plot of the Land Records Department were carefully and land. In the present operations the area statements completely checked and a clearance list was made of all the plots existing on the map in serial order of their numbers and showing their area. In the course of this work every recorded area which roused suspicion of inaccuracy upon an examination of the map was recalculated by the revenue surveyor in whose charge it fell. A copy of the new area statement for every kwin was given to the surveyor in exchange for that in use hitherto, which was sent to the Superintendent of Land Records for disposal. Each surveyor thus has for every kwin an area statement contemporaneous with the settlement party's statement, and can therefore calculate the holding areas by new soil-classes with the minimum of labour in the year in which the new settlement comes into force. In the settlement party's