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# THE LABOUR SYSTEM OF ASSAM

BY

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"The Assam Labour System rests on the basis of a penal contract enforceable through the Criminal Courts. It is recognised to be an exceptional and transitory system, and the Government of India are pledged to revise or put an end to it when the conditions of Assam are assimilated to those of neighbouring provinces; but that time has not yet come, and in the meanwhile there is abundant testimony that the labour conditions prescribed by the law have worked on the whole satisfactorily [1] in Assam."—"Moral and Material Progress and Condition of India, 1901-02."

# THE LABOUR SYSTEM OF ASSAM

## THE LABOUR SYSTEM OF ASSAM.

IN the Assam valley of the Brahmaputra there are close upon 500 tea-gardens, averaging about 400 acres each, which in 1901 were employing 298,382 adult labourers (of whom 108,861 were "Act labourers," and the remainder were for the most part persons re-engaged after the expiration of their original contract), and 246,376 working children, in addition to occasional labourers at certain times of the year. About these occasional labourers we need not concern ourselves, since they are mostly Kacharis, who are not only free, but who are very jealous of their freedom. The other coolies are for the most part what are called "Act labourers," and the system under which they are employed rests upon the basis of a penal contract, enforceable through the Criminal Courts. This system is usually spoken of as a special and exceptional system, and the Government of India in their official papers admit their duty to put an end to it, when circumstances permit. But the cry has always been that the time for that has not come. In saying that, the Government of India have had in view the interests of the tea-planters, or what they believe to be their interests, and not the interests of that much larger community from whom the tea-coolies are drawn. It is surely not too much to hope that under the new conditions presented, first by the partition of Bengal, and next by the accession of Mr. John Morley to the office of Secretary of State for India, that some opportunity may now be found to enable

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the Government of India to fulfil their pledge of revising or bringing to an end "an exceptional and transitory system" which has endured for upwards of forty years, and which has been a cover for fraud and cruelty and for an appalling mortality.

Labour immigration into Assam has long been the subject of special legislation, and this legislation has always been based upon the assumption that the condition of the labour market of the Assam tea-gardens cannot be regulated by the ordinary conditions of supply and demand. Whether that is so or not I will not at the moment discuss. In the year 1882 an elaborate code was drawn up, which with certain amendments as to wages and recruiting which came into force in 1901, is substantially the law at the present time. The law of 1882 consists of no less than 195 sections, besides sub-sections, and was drawn with elaborate, but unavailing, precautions for the protection of the labourer. Men employed to recruit labour for tea-gardens must have either a licence or employer's certificate as the case might be. The minimum monthly wage was fixed, the length of contract, the rations, the housing, hospital, and sanitary accommodation. Any employer who should evade his obligations, or should in any way ill-use or injure his labourer, is liable to heavy penalties. Yet in spite of licences and certificates, fraudulent recruitments, even kidnappings, have been common—in spite of pains and penalties, employers have both evaded their obligations and ill-used their labourers. Many of these tea-gardens are stated, on the highest authority, to be conducted with the greatest humanity and regard for the labourers; but there are, unfortunately, bad planters as well as good ones, and this immigration law of Assam places ignorant, friendless, penniless men and women absolutely at the disposal of their employer for the space of four years; and in spite of the obvious care with which it was drawn, it has been found insufficient to restrain those who are careless or callous as to the coolie's welfare.

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According to the Act, if a labourer has any complaint to make, the employer is bound to send him to the inspector; and if there are ten or more labourers who wish to complain, then the employer has to send a written notice to the inspector. If the complaint should be adjudged frivolous, then the time the coolie has lost over it is added to the length of his contract. The labourer, on his side, is liable to fine or imprisonment, or both, if he fails to fulfil his task without reasonable excuse, or if he deserts. If he is imprisoned, then the employer has the power to have the sentence or part of it cancelled, and have the labourer handed over to him in continuance of his contract.

### WAGES.

The question of wages is of the first importance, for we find that the penal contract labourer is always paid a less wage than he could earn as a free man.

The Act of 1865 fixed the minimum monthly wage at 5 rupees for a man and 4 rupees for a woman. The value of the rupee has varied very much since then, but since 1895 it has been 1s. 4d., and, to avoid confusion, we will assume that this has been the value all along. The rupee, then, we take as worth 1s. 4d., and, as there are 16 annas to the rupee, the anna to-day is worth about 1d. in our money, although it used to be reckoned at 1½d. The law of 1865, therefore, fixed 5 rupees (or 6s. 8d.) as the wages for a man per month, and 4 rupees (or 5s. 4d.) as the monthly wage of a woman. This rate was, however, systematically ignored, and very few coolies indeed reached the minimum statutory wage: the excuse usually given for this was that there was so much sickness or so much idleness that the work done was inefficient. In 1882 the law was amended, and according to that amendment the rate of 5 rupees and 4 rupees per month was to be paid for a completed task; for incompleted tasks the payment was to be calculated in proportion to the

amount done. Reckoning twenty-six working days to the month, 5 rupees for the man = 3d. a day, and 4 rupees for the woman = 2½d. per day—a rate which does not allow much margin for sickness or slackness. And it must not be forgotten when we are reckoning the rate of wages per day that, although the coolie may only earn money for twenty-six days per month, he has to live for thirty or thirty-one days.

The statutory minimum was fixed at 5 and 4 rupees, but an inquiry made in 1900 showed that the average earnings for the previous seventeen years had never reached even this figure; they proved to have been 4 rupees 10 annas (or 6s. 2d.) per month for men, and 3 rupees 10 annas (or 4s. 10d.) for women. This, we may observe, was the average wage for all adult workers, good and indifferent, strong and weakly, and included advances, overtime, and sick allowances; and yet, taking all together, both in the case of men and women the average wage is 6d. a month less than the actual minimum laid down by the code. When you are earning £5 or £6 per month a difference of 6d. may not seem much, but when your wages are only 5s. or 6s. a loss of 6d. is a very serious matter. While the average earnings, then, of the Act labourers have been under 3d. a day, non-Act labourers in Assam—and there are a large number of these employed on various industries—have been during the same period earning a good deal more. Their wages had increased in ten years from 5 annas (or 5d.) per day in 1890 to 6 annas (or 6d.) in 1900, or more than twice as much as that paid to the Act labourer. The wages of the free labourer increased by a purely natural process which was not permitted to operate in the case of the contract coolies. With railway construction, mining, and the development of the cotton-growing and other industries the demand for labour in Assam increased. Consequently, in the case of free labourers, the wages rose also.

For years past complaints have been made that the

difficulty of recruiting the contract coolies increased year by year, and that, although higher prices were paid per head for the recruits, the labourers brought in were fewer and often of inferior physique. The natural explanation for this was that coolies of good physique and constitution could command better wages elsewhere as free labourers, and were therefore unwilling to emigrate to Assam on a four years' penal contract. When Sir H. Cotton was Chief Commissioner of Assam he pointed this out again and again both to the planters and to the Government, but the planters would not admit that wages were too low, and sought for every reason but the right one to explain the deficiency in the labour supply. At last, however, there has been some slight improvement in the rate of wage, very slight, but still something. By the Act of 1901 the minimum wage has been fixed at the old rate of 5 rupees and 4 rupees for men and women respectively for a completed task for the first year, but rises to 5½ rupees and 4½ rupees in the second and third year, and 6 rupees and 5 rupees in the fourth or final year. This is good as far as it goes, but, as I shall show later on, it is by no means good enough.

I have dealt with the rate of wages before I go into the more serious and shocking aspect of penal contracts, because I want to make it clear how all through from beginning to end, right down to the fundamental point of remuneration for his labour, this system acts injuriously to the labourer.

#### CAN THE LABOURER SAVE ?

In the autumn of 1902 the *Times* published a series of articles on the Assam labour question, and the correspondent (himself, I believe, a tea-planter), writing of the relations between employer and employed, says :

“ For him alone there exists a sahib who is directly interested in his personal welfare, and who is always on the spot. The sahib watches the condition of his labourers with his own eyes, he hears



their complaint with his own ears, he pays their wages with his own hands. Hard is his life and scanty his reward. But the labourer has been withdrawn from the fierce battle of the millions, amid the storm and stress of varying seasons, into the constant shadow of prosperity and peace. Henceforward he has nothing to fear. He is protected from famine, from fraud, from violence, from usury, from all manner of external ills. For him and for his like alone among the poor of India, the problem of life is solved."

If the Assam tea-gardens were indeed the earthly paradise that is here pictured by the *Times*, there should be no difficulty either in recruiting new labour, or inducing time-expired labourers to renew their contracts, even without the bonus, or bribe, of 12 rupees (or liquor) which is now offered them to do so. We are told that comparatively few of the recruited labourers do return to their homes, the native districts from which they have been drawn. That is true, but for that there are two powerful reasons. In the first place, many of them die—but that point I will deal with later—and in the next, of those that survive their period of contract, the majority are without the means to get to their homes. They are not only without money in hand, but are actually frequently in heavy arrears to their employer.

I have shown that the average earnings of the Act labourer are under 5 rupees a month; it has been estimated by a tea-garden doctor\* that the coolie would need to spend the whole of that in food in order to keep himself in health. As he cannot afford to do that, he contrives to exist at the expense of his health on 3 rupees or less. His clothing costs him on an average about 14 annas per month, and he has to spend as much again on kerosine oil for lighting, on cocoa-nut oil to rub on his skin, on cooking and eating utensils, an axe for chopping wood, and a few other domestic tools and necessaries; all trifles in themselves, but all having to be paid for out of a most inadequate wage. In addition to supporting himself, the

\* "The Coolie Question of Assam," by R. W. Gray, M.B., C.M., p. 19.

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coolie will probably have children under working age, or aged relatives to support. If he is sick he is entitled to a subsistence allowance of  $1\frac{1}{2}$  annas (or  $1\frac{1}{2}$ d.) a day, but this is frequently not given except in cases of severe illness.

Dr. Gray, the tea-garden doctor referred to above, estimates that, taking all these things into consideration, the coolie needs to be paid at least 10 rupees per month in order to save anything at all, and even then he would be earning no more than the ordinary free labourer working in Assam. Since the ordinary coolie earns insufficient even for proper nourishment, it is clear that it can be only in very exceptional cases that he can manage to save the 27 rupees—*i.e.*, his entire wage for six months—which is the planter's own estimate of the average cost of the return-journey. And even if he did contrive to save his passage money, it is surely a very poor look-out for a man that after an absence of four years in a very unhealthy climate he should return to his native village as empty-handed as when he left it.

Instead of wondering at the difficulty of recruiting, we may wonder how the labourers are recruited at all under such circumstances! But it must be remembered that the poverty of India is beyond the power of words to describe and there is no more successful recruiting agent than hunger and want.

### RECRUITING.

Now, as to the recruiting itself. By the Act of 1882 most elaborate and stringent rules were laid down in regard to the recruitment of labourers. Contractors, sub-contractors, and garden sardars—*i.e.*, coolies employed in tea-gardens in a superior position who are commissioned to go home to their native villages to recruit—all these had to be licensed by a magistrate, and were bound by all sorts of provisions to ensure *bona fide* recruiting. All particulars, description, and the identity of each labourer recruited have to be registered, and endorsed on the con-

tract. There is a medical inspection to be passed, a superintendent or inspector is supposed to explain the contract, and finally the penalties for coercion or wrongful recruitment are severe.

Nevertheless, in spite of registration, identities have been hidden, the inspection has been in some way evaded, the labourer kept in ignorance as to the terms of his contract, and coercion and fraudulent recruitment have been common. The traffic in penal contract labourers has been a very profitable one, and bears a very close resemblance to a traffic in slaves; the recruiters, or man-catchers, buy their licence, and are paid so much a head, from 60, 80, even to 150 rupees (the price has gone up with the difficulty of recruiting) for every labourer brought in. So that under this system we have the curious condition of labour being dear to the employer without any corresponding benefit to the labourer. The recruiters are men who have to display activity and resource, risk personal danger and popularity, and in pursuit of their trade are obliged to spend money freely in bribes. They charge heavily for every recruit they bring in, and they contrive to grow fat whilst the labourer starves.

The Act of 1901 made the rules of recruitment even more stringent than before, especially in regard to the recruitment of women. That greater stringency was an urgent necessity is admitted by the latest Blue-book, but this has not always been so, for in a return obtained by Mr. Bradlaugh in 1889 I find a despatch signed by the Viceroy, Lord Lansdowne, and the six members of his Executive, stating that they do not think the abuses attending recruitment were so prevalent or of such a character as to call for urgent legislation. After dealing with special cases under discussion, Lord Lansdowne's Council go on to use these significant words :

“ We desire to guard ourselves against being supposed to deny that abuses exist. They are inevitable under any system of emigration on a large scale. Misrepresentation will be made both

to men and women of the advantages of the life for which they are invited to abandon their own country."

Abuses did indeed exist ; the very return which includes Lord Lansdowne's despatch gives cases in which coolies were entrapped, not merely by ones and twos, but by the score, and in one instance as many as 132 persons who were on their way to work as free labourers at Darjeeling, but who were decoyed into a steamer and eventually dumped down in Assam. Seven years later Sir Henry Cotton became Chief Commissioner for Assam, and he was by no means the man to see these "inevitable abuses" unremoved. In March, 1901, he told the Legislative Council of India, that :

"In too many instances the subordinate recruiting agents resort to criminal means, inducing their victims by misrepresentations or by threats to accompany them to a contractor's depôt, or railway-station, where they are spirited away before their absence has been noticed by their friends or relations. The records of the Criminal Courts teem with instances of fraud, abduction of married women and young persons, wrongful confinement, intimidation, and actual violence—in fact, a tale of crime and outrage which would arouse a storm of public indignation in any civilised country."

A tale which has, alas! been permitted to pass almost unnoticed in India, and of which the public in this country have been for the most part in entire ignorance.

The immediate result of the greater stringency of the Act of 1901 was to largely diminish the number of immigrants recruited. The new regulations are especially stringent as regards women, with the effect that in certain districts the emigration of women has been practically stopped. Under the new Act, before a woman can be recruited she has to produce the consent of her husband or her legal guardian. This, in spite of liberal "rewards to the police" (so-called), and "baksheesh all round," has proved very difficult to obtain. Husbands and fathers have not been found willing to sanction the emigration of the wives and daughters to the deadly climate of Assam on a four years' penal contract for a wage of less than 2½d.

per working day. As in some districts, women had hitherto formed half, or more than half, the total number of emigrants, the obstacles placed in the way of their recruitment account to a large extent for the great diminution of recruits, in spite of the slightly improved wage fixed by the Act.

At the annual meeting of the Indian Tea Association held in Calcutta in February, 1904, and reported in the *Times* of April 23rd, the Chairman complained that "the enhancement of pay had not given the planters the full labour supply which Sir Henry Cotton, the then Chief Commissioner of Assam, had predicted; the extra expenditure profited neither the industry nor the labourer, but merely swelled the profits of the contractors." Sir Henry Cotton never predicted that the exceedingly small enhancement of pay provided by the Act would give the planters a full labour supply *without* the removal of other abuses to which he drew the attention of the Indian Government. If it is true that this increased pay goes to the contractors instead of the labourers, as the Act designed, it is a further proof of the evil of the system. The law which permits recruited contract labour proves powerless to protect the recruits.

Unfortunately, the Act of 1901, like the former Act of 1882, left Act XIII. of 1859 unrepealed, and we find in the annual "Statement of the Moral and Material Progress and Condition of India of 1902 and 1903" comments on "the general tendency to abandon Act XI. of 1901 as a basis for labour contracts executed in the province, and to make use instead of agreements enforceable under Act XIII. of 1859." This Act is open to serious objection. Under it a contract may be enforced though it is not in writing, not stamped, or not registered, though there is no proof that the labourer understood the terms of his engagement, though the terms may be unfair. Under it a labourer cannot free himself by redemption, nor can he plead any misconduct on the part of his employer as an excuse fo

non-performance. (Mr. Bradlaugh's Return relating to Assam Coolies, 1889.)

## MORTALITY.

For some years, even before the Act of 1901, the difficulties of recruitment had been growing, and the price of recruits increasing. As I have already observed, men of good physique and good character were unwilling to emigrate on a penal contract at lower wage than they could command as free labourers, and the contractors, therefore, took men and women who from one cause or another were in such a state of destitution that they would emigrate on any terms as a last resource. The importation of these poor wretches, their subsequent insufficient feeding, due to the inadequate wages they earned, naturally resulted in a mortality which was simply appalling. In the thirteen years 1887 to 1899 the mortality amongst Act labourers averaged 53 per 1,000; that is, mark you, the mortality amongst *adults*; not the mortality for people of all ages. In 1900 the death-rate was 43 per 1,000, and in 1901 it was as low as 37·2. The Blue-book ascribes this decrease to (1) the fact that fewer new coolies arrived during the year, (2) that there had been increased vigilance on the enforcement of the sanitary regulations, and (3) to the greater healthiness of the season. But, although the mortality of 1901 looks low compared with that of former years, it still compares most unfavourably with the rate of mortality amongst non-Act coolies in Assam, which for adults was 25·2 per 1,000 in 1901 as against 37·2 per 1,000 for Act labourers. In 1902 the death-rates were respectively 25·4 and 40·3; in 1903 they were 26·32 and 37·8.

Added to this there is every reason to believe that the death-rate amongst the Act labourers is even greater than it appears. Sir Henry Cotton informed the Legislative Council that on some estates deaths were systematically unreported, being entered as "desertions." In other cases when a coolie gets so bad that there is little chance of get-

ting any more work out of him; he is entered as "discharged by mutual consent," *i.e.*, he is told he must either work or clear out. He cannot work, so he has to clear out, sick, and absolutely destitute. Further, Sir H. Cotton in a letter he wrote to the *Times* (Sept. 11, 1902), says that he had seen with his own eyes "a Government hospital full of sickly and dying contract coolies, who had just been eliminated from his garden by one of the oldest and most respected tea-planters in the province." These, of course, would figure in the garden report as "discharged." If that is a sample of the practice of old and respectable tea-planters, one is fain to wonder what other less reputable planters do!

#### DESERTION AND FLOGGING.

From this tea-garden paradise where "he is protected from famine, from fraud, from violence, from usury, from all manner of external ills"—according to the *Times*—the coolie often tries to escape. A coolie suspected of deserting may be arrested without warrant by an employer or by anyone acting on his behalf, without the assistance of the police; he is liable to a fine of 20 rupees or imprisonment, or both, for desertion; and anyone harbouring a deserter is liable to a fine of 200 rupees, or one month's imprisonment, or both. Notwithstanding this, thousands of desertions take place every year: in 1899 the number reported throughout the province was 19,560, or 17,969 in Assam proper.\* It is difficult to realise the condition of despair to which these people must be reduced before they would have recourse to so desperate a measure as desertion, unless we try to picture to ourselves something of their circumstances. They are perhaps hundreds of miles from their native villages; the tea-plantations, which are frequently reclaimed from the jungle, are for the most part surrounded by jungle. Without means of subsistence other than roots or edible earth, or such fish as they may be able to catch

\* "The Coolie Question of Assam," by R. W. Gray, M.B., C.M.

with their hands, these miserable people leave this tea-garden of Eden to perhaps perish on the roadside or in the jungle, either by starvation or a prey to wild beasts, or they get captured and kept in slavery by the hill tribes, or they are caught and brought back to their masters, by whom they are taken before the magistrate and punished according to the law—or, what is more likely, by whom they are flogged, and frequently also fined the five or more rupees paid for their capture.

In the *Amrita Bazar Patrika* (Calcutta) for May 16th, 1904, attention is drawn to a trial reported in the *Weekly Chronicle* of Sylhet, which throws considerable light on the methods employed to recapture runaway coolies. In the cross-examination of a steamer agent's clerk, before the Extra-Assistant Commissioner of Tezpur, it transpired that there is a long-standing practice in Assam of arresting suspected runaways by ferrymen :

“That this clerk himself, on receipt of information from a garden manager, had detained coolies, instead of giving them tickets for journey elsewhere, and was rewarded for every such case of detection and detention ; and that *he would not even issue tickets if any coolies were known to be going to complain against a manager.* Nor is this all. Certain correspondence has passed between the Secretary of the Chief Commissioner of Assam and the Assam Tea Association on the subject, in which the Assam Government drew the attention of the Association to a case of some absconding coolies having been illegally arrested and detained by a ferryman at the instance of a tea-garden manager, and also to reports to the effect that ferrymen not infrequently stop persons of the coolie class who seek to cross by their ferries on suspicion of their being absconders. In some cases, the ferrymen, it is stated, act with authority under Section 195 of Act VI. of 1901, from the manager of the garden, though no such plea was possible in the particular case which came to the notice of the Chief Commissioner. The Chief Commissioner was fully alive to the illegality and the evils of the practice ; nay, his honour, we are told, expressed himself even disposed to prohibit ferrymen and their servants from accepting an authorisation from any employer to arrest deserters from the tea-gardens under Section 195 of Act VI. of 1901. But, all the same, the Hon. Mr. Fuller, we are assured, has yielded to the clamour of the tea-planters, and the practice now flourishes practically with his sanction.”



The floggings of men and women are not infrequent episodes in these happy gardens where violence is unknown, and sometimes it happens that these floggings are inflicted with the utmost severity. Sir Henry Cotton\* speaks of a case which came under his notice in which coolies were confined for days in what was described by them as a "prison house" in the garden, who were so mercilessly beaten that three had their arms broken. Another case I recall (although I have mislaid the note on it) was of some coolies who were brutally flogged for refractory conduct, and thrown into the garden prison house. One in despair committed suicide. This led to an inquiry, and it was found that two others had their ribs broken.

When I was reading the Assam Immigration Act, I looked for, but was unable to find, the clause authorising the flogging of coolies by their employers, and I was at a loss to know under what authority this was done. The *Times*† correspondent, however, throws a light upon this :

"A practice has grown up on nearly all estates by which the manager acts on his own discretion and at his own risk. Such a man does not always work within the letter of the law. Often, as in the recovery of deserters, he exceeds its strict provision in his own favour; still more often, as in the supply of rice, he relaxes it in favour of coolies who are not under the Act. He personally disposes of all offences by labourers, except serious ones, whether they be offences against the garden or against each other. His power to inflict fines or any form of punishment is derived not from any legal enactment, but from his personal influence with the labour force. This practice is not merely a relief to the magistrates—it is not too much to say that without it neither the industry nor the government of the Province could be carried on."

This practice may be a relief to magistrates, but it is a relief purchased at the coolies' expense, and is open to the greatest possible abuse.

Those who see the Indian papers or the *Manchester Guardian* or the *Morning Leader* may have read details of

\* *Times*, September 11th, 1902.

† September 2nd, 1902.

what is known as the Bain case. Mr. Bain is an Assam tea-planter, and early in 1903 he flogged a tea-coolie named Lalsa, who was recaptured after desertion, and two women who had also deserted and were recaptured with Lalsa. Lalsa was so severely flogged that he lost consciousness and died. In consequence of this Mr. Bain was brought before the Sessions Judge of Cachar (February 20), who was a European, and a jury of five Europeans, of whom four are said to have been planters. This jury acquitted Bain of the more serious charge of culpable homicide, and found him guilty only of "simple hurt," for which he was sentenced to six months' simple imprisonment. He went to prison on February 27. This light sentence was the subject of considerable comment in the Indian press, and the Government ordered the papers in the case to be examined; they also thought the sentence too light, and directed the Chief Commissioner of Assam to move the High Court to enhance the sentence, or give his reasons for not doing so.

The Chief Commissioner gave his reasons against enhancement, but as they did not satisfy the Government, the Advocate-General was directed to appeal to the High Court against Mr. Bain's acquittal on the more serious charge. The case then came before two judges of the High Court, one European and one native Judge, who held that the Cachar judge had materially misdirected the jury in respect to the grave charge, and a fresh trial was directed. The case was set down to be tried on August 31 in Calcutta, before Mr. Justice Sale. When that day came, before the special jury could be empanelled, it was stated that Mr. Justice Sale had looked through the evidence, and he expressed so strong an opinion as to Mr. Bain's innocence that the Advocate-General refused to go on with the case. Mr. Bain, therefore, so far from having his sentence enhanced, served only five out of the six months' imprisonment to which he was originally sentenced, and forthwith stepped down from the dock

amidst the applause of his admiring friends. Later on he had the audacity to ask for compensation, but the Government curtly refused to entertain the application.

On February 15, 1904, two tea-planters of Assam, Messrs. Reed and Thom, were tried before the Sessions Judge at Tezpur in respect of a coolie named Joylal, who met his death in their garden, in consequence, as it was alleged, of violence used to him by the prisoners. In England we should speak of these cases as murder or manslaughter; in India they manage these things differently. Mr. Thom pleaded guilty to "simple hurt," and was fined 150 rupees, or £10—a sufficient indication of the value placed upon a coolie's life. Mr. Reed, however, declined to plead guilty to "simple hurt," but said he would plead guilty to "simple assault." The case was proceeded with, and medical evidence as to the cause of death was taken. Colonel Macnamara, I.M.S., under cross-examination, said that the body of deceased was in many parts a pulp. There were four medical men present, and none had ever before come across such a case. The foreman of the jury suggested kneading, and the witness said it was quite possible. The judge then asked the Government pleader if he took the same view as the committing magistrate, that the native witnesses who alleged violence were not to be believed, because if he did the case might be shortened. But the pleader elected to go on, with the result that Mr. Reed was found guilty of "simple hurt," and fined 25 rupees, or £1 13s. 4d. †

The effect of such sentences as the foregoing is extremely serious and far-reaching. It would be outside the scope of this paper to even glance at the impression of grave injustice they produce in India generally, but a very striking object-lesson is presented of the real and practical slavery in which these Act labourers are held when they can be done to death by their employers in this way at the extreme risk of a brief term of nominal punishment, or a nominal fine.

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MR. JOSEPH CLAYTON (*Secretary*).

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At the request of friends and fellow-workers in India, there has recently been established a special Department of the Humanitarian League for dealing with Indian questions. It is felt that some organized effort is needed in India, as in England, to mitigate the vast amount of unnecessary pain inflicted through ignorance or callousness, and to prevent the importation of cruel European customs in defiance of Indian sentiment.

Those who are in sympathy with this project are requested to communicate with the Secretary, Mr. JOSEPH CLAYTON, at the office of the Humanitarian League.

INDIAN HUMANITARIAN COMMITTEE,  
53, Chancery Lane, London, W.C.

## Aims and Objects of the Humanitarian League:

THE Humanitarian League has been established to enforce the principle that *it is iniquitous to inflict avoidable suffering on any sentient being*. This principle the League will apply and emphasise in those cases where it appears to be most flagrantly overlooked, and will protest not only against the cruelties inflicted by men on men, in the name of law, authority, and conventional usage, but also, in accordance with the same sentiment of humanity, against the wanton ill-treatment of the lower animals.

Among the reforms advocated by the Humanitarian League the following are prominent:

A thorough revision and more humane administration of the Criminal Law and Prison System, with a view to the institution of a Court of Criminal Appeal, the discontinuance of the death penalty and corporal punishment, and an acceptance of the principle of reclamation instead of revenge in the treatment of offenders.

The humanizing of the Poor Law; and the prohibition of the industrial use of substances that endanger the health of the workers.

The establishment of public hospitals under municipal control, where experimentation on patients shall be impossible. The complete abandonment of the medical tyranny which would enforce vaccination by fines or imprisonment.

The extension of the principle of International Arbitration, and the gradual reduction of armaments.

A more considerate treatment of subject races in our colonies

A more vigorous application of the existing laws for the prevention of cruelty to animals, and an extension of these laws for the protection of wild animals as well as domestic.

Prohibition of the torture of animals by Vivisection in the alleged interests of science.

Insistence on the immorality of all so-called "sports" which seek amusement in the death or suffering of animals. Legislative action in the case of the most degraded of such sports.

The prevention, by the encouragement of a humaner diet, of the sufferings to which animals are subjected in Cattle-ships and Slaughter-houses; and, as an initial measure, the substitution of well-inspected public abattoirs for the present system of private butchery.

An exposure of the many cruelties inflicted, at the dictates of Fashion, in the fur and feather trade.

Recognition of the urgent need of humaner education, to impress on the young the duty of thoughtfulness and fellow-feeling for all sentient beings.

In brief, the distinctive purpose of the Humanitarian League is to consolidate and give consistent expression to the principle of humaneness, and to show that Humanitarianism is not merely a kindly sentiment, a product of the heart rather than of the brain, but an essential portion of any intelligible system of ethics or social science.

# MEMORANDUM

ON

# FOREST SETTLEMENTS IN INDIA.

BY

**B. H. BADEN-POWELL, LATE B.C.S.,**

AUTHOR OF "MANUAL OF THE LAND REVENUE SYSTEMS AND LAND TENURES OF BRITISH INDIA," "MANUAL OF JURISPRUDENCE FOR FOREST OFFICERS," etc.



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## FOREST SETTLEMENTS IN INDIA.

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It is satisfactory to see from the *Indian Forester* for November 1891 that the subject of forest settlements is receiving attention, and I have thought that a few remarks suggested by the article (in the number alluded to) might not be unacceptable. In truth, the experience of Europe should teach us that no part of the work of constituting or building up *forest estates* (for this is the object of the administration) is of greater importance than that of determining all questions of right within the limits of the 'estate.' Several instances might be cited where what was once a limited grant or charter to a small cluster of houses, or a few farms, has in time grown to be a burden, swallowing up the greater part of the yield, and all the profits to the State, of an entire forest.

In forest constitution there are two sides to the question—two views in which the forest is to be regarded. In one view, the forest is a part of the earth's surface which is capable of yielding a class of produce of which timber is often, or usually, the most directly valuable, but which is not the only produce, and not always (under certain circumstances) the most economically important. From this point of view, forest management obliges us to devote our attention to such a theory and practice of silviculture as will enable us to produce to the best advantage what we most want; and as this must be done, on the large scale, chiefly by nature—nature helped, directed, and restrained—a variety of systematized (or scientific) knowledge is indispensable. From the other point of view, that part of the country which is the site of those operations of nature and art which are working together to produce and to maintain the 'forest,' is necessarily kept apart from those other portions which are utilized in other ways. The forest 'estate' is *demarkated* in some way if it is not fenced or enclosed; and in this state it is regarded as a *piece of property*—an estate of a particular kind—no matter to whom it may belong. Regarded from this point of view, a forest is obviously a kind of property which is peculiar, owing to the inveterate tendency of the illiterate peasantry (in all countries) to regard the forest as *un-cultivated*—as not (to their eyes) the same as an area growing corn, or apples, or cherries,—it is particularly difficult to preserve it from depredations of all kinds: people *will* think that because trees, grass, and fruits of the wild trees are the produce of nature, *therefore* it is no theft to take them. It is not felt that gold and gems are just as much the produce of nature, and that the art and skill exercised in polishing and preparing them are not distinct in kind from the care

and labour that are expended on tending a forest. Special laws have to be made to protect the forests on this account.

There are of course many other special features of forest property regarded as property: for instance, an exceptional liability to uncontrollable destruction by fire; but these I do not enter into as an immediate subject for consideration.

But while this tendency is, or ought to be, confined to the ignorant and unthinking, there is another thought in the minds of the magistrates and official classes generally: they think that after all, the ordinary run of offences do no harm to the forest. It was very long before officers would realize that forest-fires did any harm. The view is held that careful forest preservation, implying protection against trees, is *only* needed for a very special and a limited class of plantation and for valuable forests of teak and other first class woods. And it is held that, for the great bulk of forests, no particular care is needed; and that (of course excepting gross acts of destruction) everybody may be left to take wood, grass, and bark, and to graze cattle freely at all times and in all places, as he pleases; and that though the forest may not, under such free-and-easy treatment, produce 'gigantic teak trees,' still it will yield, and go on yielding, all that is practically necessary. Such wholly fallacious views were actually put forward by Sir T. Hope, in Council, when the Forest Act of 1878 was under discussion. The original framers of the Act\* had no idea that such a use would be made of the chapter unfortunately headed "Protected Forests." Legally speaking, of course, the Act *does* speak of two classes of forest, and gives no indication (in its terms) as to where one class and where the other should be the object of Government to establish. But the framers intended that the chapter should be applied to any large area of waste or wooded land, which it would be unwise, and indeed impracticable, to declare permanent forest in too great a hurry. It was not then known how the demands of cultivation would affect large tracts of waste; what influence (for example) railways would have on the 'waste' in such places as the Central Provinces. Why the exact term 'protected forest' was made use of I do not know; but none of us who took part in the work suspected or foresaw the mischievous use that would be made of it. Indeed, when Dr. Schlich and I were deputed to Calcutta to offer advice to the Select Committee sitting on the Bill, we found that the intention of the chapter to afford temporary protection, pending the development of circumstances, was understood: the fears of the Committee were directed to the point that the enforcing of *rules* (such as section 22 contemplated) might affect rights (which we had purposely left unrestricted) in spite of our draft; the Committee were therefore bent on introducing the latter clauses of section 28 to avoid this (supposed)

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\* It is well known that Sir D. Brandis prepared the draft, with some assistance, from me among others, and I am well acquainted with, and in full sympathy with, Sir D. Brandis's views.



difficulty. In vain we pointed out that the tracts dealt with were *not* 'forests' properly so called—that is, permanent estates finally *constituted*; and that, therefore, we did not propose to interfere with *any rights at all*—whatever they might be; we pointed out that if it were necessary to regulate *rights*, then the forest would have to be 'reserved.' The Committee (who, it is needless to say, had not among them any experts) perceived that if they added a *complete* provision for the *settlement* of rights, there would then be no real difference between 'protected' and 'reserved' forest; so they adopted the vague general proviso for a general *record* of rights without any attempt to provide for the settlement of any disputed question, or to say what was to happen if a right was *not* recorded, as very easily might be the case. They hoped, doubtless, that *somehow* their addition would prevent the rules from operating harshly. But they never took up Sir T. Hope's line (he was not on the Committee at that time), nor did they question the views of the framers as to the proper use of the chapter. Sir T. Hope's idea that the great bulk of forests could be always left under Chapter IV, and only a few choice localities need be placed under Chapter II, was heard for the first time in his speech in Council. Had it been generally adopted at any time by the Government of India, it would have made the Act entirely inoperative for any purpose commensurate with the wants of the country. As it was, seeing we could do no good, we obtained leave to withdraw, and our subsequent exertions were all devoted to keeping the mutilated and imperfect Act from coming into force in Madras, and especially in Burma—a matter in which we were happily successful.

Thus we have two sentiments—one in the minds of the agricultural population, and one in those of the rulers—which are great difficulties. And I must at once proceed to remark that (as is usually the case with most errors however pernicious) either sentiment contains, or is connected with, a copious element of truth; and this is apt to be taken to justify the entire position. As regards the desire of the people to do as they please in all forests, there are of course a number of cases in which actual *rights* to take wood or to graze cattle exist; but there are other (and still more numerous) cases where these objects are of such vital importance to agricultural and pastoral people under the century-old systems of tillage which they have inherited that they are indispensable; and systems of forest culture *must* make provision for their supply. On the other hand—and as regards the views of Sir T. Hope—views which, in a perhaps less defined form, may influence the best officers,—it is of course true that there are different degrees of "intensity" in forest culture, and that, according as our objects differ, the necessary degree of detailed care in silviculture may vary also, but that is the limit of the difference. Now, the majority of officers cannot get rid of the idea that, no matter how numerous or extensive the demands on a forest are, no care is needed in periodically closing any part. No unpalatable restriction need be placed on the quantity or

mode of acquiring it the *yield will go on for ever*, as long as produce is only fairly taken, and acts of mischief, distinguished from acts of mere appropriation, are repressed. The absolute fallacy of this idea, it is to be feared, will not be established till our forests are (experimentally) ruined before their eyes, if indeed (and here is the misfortune) the ruin, which is not less sure because it is slow, is not delayed beyond the ordinary official lifetime of any one officer.

To this inveterate belief is, unfortunately, also to be added the intense fear of unpopularity and discontent, and the dread of the trouble involved, in making a really satisfactory enquiry into, and settlement of, the management of a forest estate—trouble, I say, not meaning that Indian officers as a rule fear work, but the staff is so small, and the pressure of general duty so heavy, that they fear that the time required would be prohibitive.

But reverting once more to the popular sentiment, it is obvious that one must come to terms with all cases of *right*. In constituting a forest which can be managed so as *permanently* to yield any class of produce (however humble), we have to make provision for the perpetual regrowth of what is taken away, and this always involves, in one form or another, the allowing of a certain time of rest: it may not even require the absolute closing of a large extent, of forest, but it essentially demands closing and rest in *some form*. And the demand is emphasized by the fact that, in a large proportion of our total forest area, the restoration of denuded or deteriorating areas is the first object. In order then to know when and how we can carry out our ideas of proper management without any interference that can be legally sustained, and in order also to know how far the public can derive the profit from the estate,\* and how far that profit must go to individuals, parties or bodies, who are entitled to it not as a charity but as a *right*, we have to separate the rights of the public (*i.e.*, of the State) for those of private individuals, communities, etc. For centuries past, in those countries where the value and utility of forest properties are fully appreciated, it is understood that this process is just as essential to the permanent realization of the essential idea of an *estate* as is the demarcation which has the double object of defining the limits over which the rights of the State, the forest owner, and the rightholder (as the case may be) extend, and the limits within which the special law of forest protection, etc., is operative. It cannot be too often

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\* It is constantly forgotten that, by deriving a proper income or profit from its forests (while maintaining and indeed improving the capital), Government is relieving the entire population from an equivalent amount of taxation. The net yield of the Indian forests in 1889-90 was close on 73 lakhs of rupees. Had this not existed, Government would have had to raise the same amount by increased taxes. When therefore the Government officers give away large quantities of free produce, they are really making presents to certain persons *at the expense of the general taxpayer*. I do not, of course, here refer to produce taken to satisfy *established rights*, but to the much larger quantities given away in "concessions."

repeated that no forest is secure which is not 'constituted,' so that it can be largely taken care of and reproduced; no forest will go on yielding an undiminished supply of *anything* without some degree of cultivation and care; and in no case can the necessary degree of care, even if it is only the lowest indispensable *minimum*, be given, unless the limits of the estate are rendered certain by natural or artificial *marks*, and unless the rights of all parties concerned—the state, the villages, and all others—are fixed and definite. No doubt if a case can be found where the forest area is large, well stocked, and with conditions favourable to growth, and if the demand on it is small, it may go on very well without such precautions, because the demand on it is a mere drop in the bucket; but *such conditions do not practically exist in any of the settled and populous portions of India* where forest conservancy is of importance.

But in Europe the question of *rights* is a comparatively simple one; and the difficulties that have arisen have been almost confined to the forms of *valuation* and to questions of defining rights where they were originally granted in vague terms, such as grazing for the '*cattle of a farm*,' firewood for the hearths of a family settlement, and the like. The rights themselves were almost always based on ancient charters and grants, or at best on a definite legally prescriptive exercise. They were always 'real' rights as the lawyers call them, that is to say, they were always attached to some 'dominant' estate—a house, a cultivated farm, a school, a hospital, etc.—for the use of which the right was created. Every right is therefore capable of direct legal proof and of being definitely dealt with on well-known principles of law. Moreover, in a more advanced state of social life and occupation, it has become more and more easy to alter an occupation that could not be continued if a forest right was taken away. If a grazing right was incompatible with the due maintenance of a forest, no hesitation was felt in buying it out, or in making a grant of land equal in value to the right, in either case valuing the right by calculating the money equivalent of a year's exercise, and making the total or capital value to be a certain number of years' purchase of the annual value. All these methods and rules have been in the course of time fixed by law. The man must then give up his cattle that he could not graze, and either take to cultivating the land grant, or to buying fodder or leasing a grazing with the compensation-money. Or again, if he has a number of goats which could not be allowed in the forest, the compensation grant would enable him to turn to some other means of making a livelihood.\* In India we have a very different state of things: to take the latter question first (as the shortest and simplest), the conditions of life do not enable people readily to turn to a new

\* I do not mean that this is *always* the case. Indispensable forest rights are known in Europe as they are in India, but the possibility of a change is much greater in Europe.

occupation, or to modify their methods of agriculture. If you expropriate a right of 'râb,' or of getting *humus* manure from a forest, people do not know how to cultivate in another way, nor can they procure artificial or natural manure of another kind with the money offered. The man who lives by his goats cannot go and change his life by establishing a market garden on the plot of land you have awarded him in extinction of his grazing rights; nor if you offer him in a capitalized sum—twenty times (say) the annual cost of grazing for 100 goats,—can he employ the money in starting himself in a shop or in some trade. These possibilities of adaptation must come slowly with the general progress of the people; but at the same time they are not nearly enough considered, nor are efforts made to make a beginning when they usefully might be.\* They would require patience and skill, and, above all, a steady view of the importance of the result, and a determination not to fail. So far as to one of the difficulties; that first stated must now be reverted to. The principal feature to be noted will already have occurred to my readers. We have only a very few instances—quite infinitesimal in number compared to the entire number of cases demanding consideration—where a definite grant, charter, or even a permission recorded at some early land revenue settlement or otherwise granted in writing by a Government official, is in existence. But rights may be also 'prescriptive,' that is to say, it is a matter of common law, which in principle we may take for granted, that where a person has, for a certain number of years, openly, peaceably, and as of right, *i.e.*, not by stealth, by violence and lawlessness, or by tacit or express permission and sufferance, exercised the practice of taking one part of the produce of a forest, he will be held to have acquired a *right* to that, provided the exercise (besides the above conditions) is not a matter of destruction, that is to say, is not one which continually threatens the very existence of the estate which is destined to bear it in perpetuity. It is also a necessary corollary of such a principle of law that, where the practice is indefinite, it can be rendered definite, and that it can be regulated so that its exercise should not interfere with a fair enjoyment of the property otherwise. I expressly, in this paper, omit reference to the case of the limitation of rights where they are beyond the yield-power of the 'servient' forest to supply. At

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\* A glaring instance is afforded by the case of the range of low hills in the Hushyarpur district of the Punjab. No educated forester doubts for a moment that these barren and useless wastes with their "chos" or sand torrents, causing the loss of thousands of rupees annually, could be 'afforested' and restored. Yet for years this work has been neglected, and the most unsubstantial difficulties allowed to be raised for fear of the discontent of a limited number of Gujjar hamlets, the inhabitants of which still continue to keep some wretched cattle which, by consuming every root and blade that appears above the ground in the rains, prevents the restoration of any kind of vegetation. There is no earthly reason, if the matter were seriously faced, why the cattle should not be bought up, and the Gujjar otherwise provided for.

any rate, the legal authorities have the full right to determine, by legislation, on what principle an undefined right shall be made definite and its exercise regulated. And this is obvious, because not only might an undefined right go on growing till its obvious original extent was far exceeded, and the entire value of the forest be swallowed up,\* but also because an indefinite right always leads to disputes, which may be as injurious to the right-holder as they are to the forest owner; and, lastly, even defined rights must be regulated fairly and equitably in their exercise, because forest management of *any* useful kind, even the *minimum* before spoken of, becomes impossible whenever indefinite and unregulated rights are numerous. It goes without saying that wherever rights are most numerous, or, in other words, when the forest produce gained by them is most eagerly sought for and most necessary, then it is of the greatest importance that the supply should never fail, *and therefore* that the forest should be so managed or 'cultivated' as to secure the continuance of the supply. This proposition can only be doubted by those who still have the lurking belief above alluded to, that (because forest destruction by overworking is a slow process) forests will *always* go on yielding at least common grazing and small wood without any destruction, except that of breaking up the ground for tillage or wholesale clearing by a fuel contractor.

Now, in India, laws defining the rules of prescriptive right are things of comparatively recent date. There have been 'Easements' Acts before 1871, but for practical purposes the Act IX of that year may be taken as the first detailed law. But then it only dealt with that particular class of rights in English law which are called 'Easements,'† and these only covered a very small portion of the right affecting forests: more indeed concerned with rights-of-way, the use of water, to the flow of drainage, etc., if not the rights of light and air and of 'lateral support,' but the entire class of *rights to produce*, such as wood, fuel, grass, grazing, surface soil, etc., were ignored. It was not till Act XV of 1877 that the law was enlarged so as to include among the rights which can be acquired by enjoying them "peaceably as an easement, and as of right, without interruption, for 20 years," that large class which are in fact our ordinary 'forest rights.' The change was effected by enlarging the definition of 'easement' so as to include

\* I allude to such cases as the well-known instance where a right of firewood for a *factory* (then a small one, consuming a very limited quantity) had been granted by charter. In after-years the factory grew to be an immense establishment requiring thousands of tons of wood.

† In English law, "easements" were rights which did not imply (generally speaking, for there were some awkward exceptions which I cannot go into) taking away produce or part of the property bearing the right. They consisted in the access of light and air, in the right to receive, or not to receive, drippings of rain and flow of drainage, the use of water, the right of support, *i.e.*, of any house by your existing wall, or of any beam let into your wall or of any wall, by your not digging out the soil adjoining, etc. They did not include rights to graze, cut wood, etc. There was a 'right of common,' a *profit à prendre*, etc.

in it "a right not arising from contract, by which one person is entitled to remove and appropriate for his own profit any part of the soil belonging to another, or anything growing in, or attached to, or subsisting upon, the land of another." It has been held by the High Court of Calcutta\* that the provisions of section 26, etc., are not exhaustive, *i.e.*, that though they formally concede the title to a right that has been exercised for 20 years in the manner stated, they do not imply that a right cannot be acquired otherwise, or cannot exist upon any other terms, and, in the case in question, the Court conceded a right where the circumstances seemed to justify it, though the precise terms of section 26 were not complied with.

This ruling has an important bearing on our work, because it acknowledges an unwritten law of 'equity and good conscience,' or a common law based on general principles, or something of the kind, *in addition* to the formal enactment in section 26.

Now, in most Indian provinces, if we review the history of the past—and obscure as that often is, there is no reasonable doubt about *this* feature of it—we shall very rarely be able to find any—even the oldest and most necessary—'right' of individuals or village bodies which strictly or at all comply legally with the terms of section 26. Grazing and wood-cutting, for instance, have been exercised, without any limit other than the wants of the people, for certainly much more than 20 years (exempt of taxes, and this is not without importance in the case of the many villages that have only come into existence within the last 20 years, on the edge of the 'waste' or forest): the exercise has been open and peaceable; but was it "as an easement," *i.e.*, as a *right* (of the kind defined), a right, not something permitted, not something which a landlord, which a State officer or some other authority, could in a moment put a stop to? The answer must be—certainly not. I pass over the question whether in truth a *right* can be said to exist if it is not recognized definitely in "common" or "written" law, and if it is not *enforceable* in courts of justice. I do not want to go into any refinements or speculations. But what was the state of the land question in the past? In later days, from about the decline of the Mogul Empire, and when the deputy governors of provinces began to set up as independent 'Nawabs,' and when the Maháttá chiefs seized on their dominions—say about the beginning of the 17th century,—† it is a matter quite beyond

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\* I think it may have been some other High Court. I cannot put my hand on the reference, but it can easily be found in a digest or in one of the annotated editions of the "Limitation Act."

† The Native Chiefs of Indore and all other States, as far as I know, do so still. In my forthcoming work on the *Land Systems of British India* (3 Vols., Clarendon Press, Oxford), Vol. I, page 230, I have given full reasons for thinking that the ruler did not at first, but only in later days, in the pride of conquest and in asserting independence, claim to be owner of all land whatever.

question that the ruler claimed to be the owner of every acre of land in his dominions. But even before that there never was a time when the 'waste' and uncleared or forest land was not the property of the ruler, and *this* right, at least, passed on to, and was accepted by, the British Government. The ruler could make, and did make, grants of waste or unoccupied land for reclamation and settlement, or, if he pleased, he kept it for his hunting-ground (witness the Mabrattá 'Rámná' or hunting-ground and the jungles in Ajmere, Rájputana and the Punjab, kept by Ranjit Singh, and other instances). Doubtless, in early days, neither ruler nor his officers required much in the way of formal permission to colonize and cultivate waste; they were only too glad to see it done, because in time the land revenue (taken in grain) would be thus augmented. The power of the State or the ruler to make a grant of jungle land was never doubtful; and if it chanced that any people or villages cut wood in the jungle granted, or grazed their cattle there, they would simply have to go on the grant being issued. In short, every kind of forest-user, grazing, etc., was so exercised that directly the land was wanted it had to be given up. It was then purely a question of sufferance or toleration of a practice which (until a grant of the land was thought of) no ruler cared about or thought of interfering with. How far such a continuance of practices in any way corresponds to the terms of section 26 I leave the reader to judge. And there is another matter to be borne in mind. When rights in land were definitely adjusted at the first (British) land-revenue settlements, the reader is aware that (from the point of view of land interest) these settlements all came under one of two general classes—either (1) an *estate* is dealt with as a whole, whether that estate belongs to one considerable landlord (as in Bengal or Oudh) or to a joint body of village proprietors (Punjab, N.-W.P., C. P.); or (2) there is no landlord estate or joint body owning an entire village, but each field or holding is individually dealt with (raiyatwári settlements, Bombay, Berar, Madras, and those of Assam, Burma, etc., which are on the same general principle). Now, in the former case, *either* all the adjacent waste and forest was made over to the estate, or village as in Bengal and most of the N.-W. P., and only remote forest tracts, hill ranges, etc., remained as Government waste, *or*, the waste being abundant, some rule was made allotting to each village or other group a considerable area of 'waste,' usually on some rule of "do chendá," *i.e.*, giving waste equal to twice the cultivated area. This was done in the Punjab, C. P., and something like it in Jhansi, Dehra Dún, etc. There are special cases of hill districts (Kumaon, Kulu, Kangra, etc.) where no such arrangement is made; but putting them aside, it is obvious that as the villagers, etc., mostly cut wood, grazed, etc., in the area near the village, a large number of forest rights (I do not say all) were satisfied and provided for by giving over, absolutely, to the village or estate the grounds that supplied them. If the people have chosen to break up

those grounds and put them all to other uses, that is *their* business; they could not raise the plea of having (on this ground) any *rights* (in any possible legal sense) in other areas. But this does not apply to settlements, in name or in principle, 'raiyatwárá': there the 'waste' numbers were all kept in the hands of Government, except such as under the names of kúran, bábul-ban, ramná, urudvé, grazing-grounds, etc., were reserved for *use* of the village, though remaining Government property, and in some cases allotments for 'ráb,' 'warkas numbers' bané (in Coorg), etc., have been specially provided. Still there are a considerable number of cases where the arrangements made, or the want of suitable arrangements, left it desirable to make provision for certain wants: perhaps the village jungle gave grass and brushwood, but did not contain material for agricultural implements, still less for house-building; and other examples will occur. Now, the framers of the Forest Law were in this difficulty—it was impossible, under the then existing condition of feeling about forests, to introduce into the Act any complete details about forest rights such as are understood in Europe; and yet it was felt that the definition of section 26 in the Limitation Law would not exhaust the subject, nor would the wider ruling of court alluded to (though framed long after) cover the case, because, however the Court may have extended its meaning, it is impossible not to suppose that it intended to make the recognition of right depend on *some* intelligible and limited principle of unwritten or general law borrowed from England or elsewhere: and if it is historically correct that no '*rights*' were ever exercised as of *right*, *i.e.*, the villager would have no redress in a court if he were told that the land where he grazed his cows had been granted to a jágírdár and he must clear out, still it could be fairly argued that, as a *matter of custom*, provision did in some way or other exist for the villages to get what they wanted. Local governors in making grants and urging on the extension of clearance for cultivation would practically respect the lands which were known to be used by certain already established villages or estates if for no other reason than this, that to interfere with such custom would be to cripple the villages, endanger the health of the cattle, and so endanger the share in the harvest which then represented the land revenue. While, then, it is important to remember how many such customary rights *have* been provided for, and how little right any one has to press any ground of *legal* right, still, I do not think it would be fair, as a principle, in forest settlements, to judge of claims on any other standard than the following:—

(1) That the village is an old established one—so that *custom* has had time to be established, and that provision was not made for its wants by an allotment of waste land, and that a long established and definite custom to take from such and such forests certain produce, or to graze in certain localities, is fairly and equitably apparent.



(2) That the produce to be supplied is really necessary.

(3) That it is for the use of the people themselves and not for sale (this is provided by law). There are special cases where certain tribes have been accustomed to collect for sale certain objects, usually minor forest produce: there need be no objection to recognizing this (Forest Act, section 13, last clause).

Mere hardship, perhaps occasioned by the people's own act, cannot be allowed *in the first instance, i.e.*, in judging of the question of the existence of a *right* to be formally admitted as such. It may afterwards be a question of some concession \* of which I am not now speaking.

(4) It is essential to recognise the *right*, so that in future it may not grow to dimensions unforeseen. It is just possible to provide in the law that, after the date of declaration, no new rights should grow up, unless for special reasons they were formally *granted* or contracted for *in writing* by the Government (section 22). But if a right which now exists, say, for fuel for 20 hearths, is so put down as to allow it to grow to fuel (perhaps) for 200 hearths, it is obvious that 180 of them will constitute practically newly-grown rights which it was the express object of the Forest Act to prevent.

There is no possible hardship in such a case. If newcomers settle in a village, the fact that they will not have rights such as the older ones had is, or should be, known to them, and is one of the conditions under which they settle, just as much as is any one of the other local circumstances limiting their enjoyment.

It was extremely difficult in 1878 to get the authorities to agree to a complete measure, nor indeed were the framers of the Act able then to say what it would be best to enact: some years of experience were needed. But a Forest Act passed under such circumstances ought to have been thoroughly revised after some years, and it is much to be regretted that our efforts to get a proper revision have been unavailing, and that a wretched patch-work in the shape of an Amending Act (which really does nothing for the main bases of forest settlement) was all that could be had.

But we must not be too ready to despair because the Act is not all that we wish it; we should rather endeavour to make the best of what we have, and, if this is intelligently done, it is surprising often to find how much better off we are than a casual or hopeless examination of existing sections would at first suggest.

---

It is better to use the term 'concession' for a permission to graze or collect produce where there is not a *right* recognized. The term often used, *viz.*, 'privilege' is not convenient, because in English law 'privilege' (*i.e.*, privilege of Parliament, etc.) is used, not only to signify a right, but one of a very strong and enduring kind; hence, to use it (in India) to mean a mere favour conceded would be very likely in time to lead to serious mistakes.

It should be remembered that we have (and can insist on) some very important rules, and the Appellate Court, if it does its duty, is bound to enforce them.

- (a) No *new* right to anything whatever can be acquired: this is distinctly infringed if rights are allowed in such a matter that they grow in size and extent.
- (b) The principle is enacted that rights are for the personal use or for the service of the person or other institution for which they are allowed: this limits the right to reasonable dimensions, and it is expressly enacted that when a person has grass, grazing, wood, fuel, etc., for his own use, or for his friends, etc., he is not at liberty to sell the produce or barter it.\* These provisions fully enforced will do a great deal.

But the greatest trouble of all is the *definition* of rights: those which are allowed in nine cases out of ten will be allowed, as I have argued, on the basis of custom long established, not otherwise provided for, and really necessary. Yet such 'customs' are pretty sure to be *indefinite* as to *quantity* of wood, etc., area of grazing, *time* of exercising the right, and *mode* of exercising it.

Section 13 went as far as, at the time, was thought practicable. It does require—

- (1) as to grazing—the number of cattle,
- " the kind of cattle,
- " the season of grazing;

and doubtless the "other particulars" of the section would include any specification about the locality or part of the forest to be used, which constitute the 'regulation' of the right, *i.e.*, that it is exercised in a fair manner, which, while the *right is enjoyed*, does not leave *other interests* out in the cold.

(2) Wood rights (of all kinds, *i.e.*, timber, industrial wood for ploughs, etc.), fuel and brushwood, fallen and dead wood or branches, lopping boughs, etc.—the *quantity* is to be recorded, and such 'other particulars' as the case may require.

As regard (1), how is the "number" to be ascertained? The "kind" is not so difficult, for it is only necessary to refer to past usage to show that the different households have cows, oxen or bulls, goats, buffaloes, camels or what. As to number, as the law *requires* the Settlement Officer to ascertain it, and does not prescribe a rule for doing so, it will surely be held that the number must be ascertained by any rule which is fair and equitable in

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\* I have already alluded to the (rare) cases where collection and sale of certain produce themselves constitute the right. That has nothing to do with what I am saying.

itself under the circumstances of each case. I need only refer to the ordinary books for the rules about cattle 'levant and couchant'—the number required to work a farm of the existing size and under the usual and long-continued method of managing it. But one simple rule could be adopted in most cases, and that is to ascertain the number of each right-holder's cattle for as many years past as may be practicable, and then to deduce an 'average number' of each kind which may be recorded as the extent of the right or number of cattle annually to be provided for.

As to 'kind,' I have only to add that great effort ought to be made to exclude goats and, of course, camels. It was not possible in 1878 to adopt the Forest Law which refuses goat-grazing, "notwithstanding all right to the contrary;" but the Indian Act contemplates—and this should never be forgotten, *first*—that the rights as they exist, *i.e.*, as the officer on judicial grounds finds he must allow, are to be recorded *and made definite*; *second*, that for the right so defined, it does not follow that it must be fixed on the forest as a matter of course. Section 14 distinctly requires the Settlement Officer to the *best of his ability*, and having *due* regard to the maintenance of the forest, to take *another series* of steps. Now, a forest is not *maintained* if *any* right is allowed to affect it so that it is continually deteriorating into scrub jungle or becoming barren, and never improving if it is already only scrub jungle. If, therefore, he has a right of goat-grazing to deal with, he is bound to consider, *before* he fixes it on the forest (section 14*c*), whether he cannot follow section 14*a* or *b*. I say this not because the Act in terms puts *a* or *b* before *c* in any order of preference, but because his doing so is the *only* way in which he can obey the direction of the law to have *due* regard to the 'maintenance of the forest.' This further follows from section 15, which explains what is to be done if a proper regard for the forest would veto the exercise of the right.

I will return for a moment to section 15 presently, but here pass on at once to—

(2) the case of wood rights in all their varieties and the question of *quantity*. The most civilized way is to make a regular estimate of the cubic feet of planks, rafters, or other form of timber; but that is often impossible; and indeed the rough methods of cottage-building in India render it hardly necessary. It will generally be quite easy to determine, by number of stems, the allowance of poles of a certain size, or of mature trees not above or below a certain girth; it will also be often sufficient to provide that a grant is to be issued on requisition for erection and repair of a given building after inspection, or on a fair preliminary consideration of probable requirements. The grant or order will thus specify the number of trees, the kind and size, etc.

When it is a question of small firewood and brushwood for fuel, it will probably be most practicable to fix the *area* and

*locality* which may be cleared regularly, with provision for each cleared strip not to be grazed over afterwards.

In collecting dead-wood, etc., the quantity is defined by the amount existing: all that is needed is to prevent people ringing or otherwise killing trees and then claiming them as 'dead.'

Lopping can be defined as to quantity by specifying the species of tree, and the height up the stem to which the removal of side branches may be carried, and a proviso that the same tree is not to be lopped oftener than once in two or three years, or whatever it is.

In mountain districts, a common tax on the forest resources arises from the fact that, by bad utilization of the timber, much more is asked for than need be. I have known whole trees to be chipped away with an adze, each to yield a single rafter or beam. Here efforts should be made to have a supply of saws on loan, and above all to establish a local depôt and give out rafters, planks, etc., in store. The officer in charge would soon learn what dimensions to cut, and, for exceptional cases, passes for standing trees would be issued. A very great deal may be done in this way. Nor would it be at all impracticable to make a beginning of a system of delivering firewood in stacks in some places.

As regards other rights, as gathering *humus* for manure, Forest Officers have the means of studying how these matters are regulated in European forests, and they should be prepared, on the basis of such knowledge adapted to local requirements and conditions, to advise the Settlement Officers as to recording the mode of exercise, especially so as to give sections of the forest soil rest in turn.

Section 15 has presented some difficulty in practice, not so much on the ground of cost, for in an important forest it is well worth the outlay, but on the grounds already indicated, namely, that money is often no equivalent (and so also a grant of land for cultivation) because the people do not know how to turn to other methods of manuring, or of keeping cattle, or whatever it is; nor are they prepared to give up one form of working for their livelihood and taking to another. But, as I said, the subject is too lightly and easily dismissed: there are many cases, for instance, in which a man might be persuaded to give up his goats and cultivate a plot of land which can be found for him.

It is seriously to be considered whether, even with the provisions we have, forest settlements might not be made much better than they are. And it is a fact, which I wish to press on the attention of public officers, that *a large number of existing forest settlements are entirely illegal, and fail to comply with what is now the law.* As long as people are ignorant, and Forest Officers unable to press the rights of the State, this unwholesome state of things may go on for a long time without finding any noticeable difficulty: but in forest matters the *laissez aller* policy

is of all things the worst. All experience shows that as time goes on forest property becomes more valuable, the tendency is inevitable that such property should become more sharply defined as a special and very important kind or class of property; and that the owner on one side, or the right-holder on the other, should look out for their legal rights with greater keenness. At last, questions will come into court, and judges will look into the Act, find out what it requires, and there will be serious embarrassment. All rational forest management looks to the future; it recognizes that while the present yield or income is made the most of, the future and the state of the capital stock are to be continually cared for and secured. This most obvious principle is infringed with the greatest certainty when rights are dealt with *not even up to the standard that the existing law allows*, however imperfect. I admit the imperfection; but I insist, that what *is* there is intelligible, and goes much further than is sometimes thought; and I insist that in practice the law is *not* being obeyed: this ought to be very seriously looked to or a crop of troubles in the not distant future is inevitable.

I have to add only a few words on the subject of 'concessions.' There is, of course, a great fear that because it must take time (and that is more considered, as I said, than trouble) to *define* rights, some officers may be tempted into declining to record any rights at all, and to stave off the difficulty by representing that 'concessions' which the law does not sanction, and therefore does not place under restrictions as to definition) will do as well, and they may recommend the executing of them in a worse way, well knowing that the *withdrawal* of these when once made will easily be resisted. This is a gross injustice to the forest property of the public; and the time may come when it will prove an equal injustice to those who might have been entitled to real customary rights. For the tide may turn, the administration may be as keen about preserving forests and the rights of the State as it now is about letting them loose, and in that case concessions may be withdrawn wholesale, or with some tardy settlement which, after the lapse of time and the establishment of practices in the course of years, may be extremely disadvantageous to the persons interested.

I submit that *concessions* require as much care as *rights*, and that they should *never* be granted without definition. I would also suggest for consideration whether *all* concessions should not be by *annual* (or perhaps triennial) 'patta' or written document, which should be required to be regularly renewed without fail as long as it is intended to keep up the concessions. A diligent Forest Officer would always be able to see that this is done, by calling for and inspecting the 'patta' from time to time. Of course every such writing would be dated, and perfectly clear as to the period for which it is in force, and should, in the boldest characters, indicate that *no right* of a permanent kind is admitted or conveyed by it.

As a matter of *amount*, I may add it is high time that some definite steps should be taken to *value* in each range, division and province, the amount of forest produce—major and minor—which is annually *given away*. I do not refer to *rights*: those are not a voluntary loss to the State. I mean that being *rights*, they are not parts of the existing public property taken away and given to any one: the value to the exchequer of the forest is the estate as it is, not as it might be if unburdened by determined rights. The value of rights as such it may be desirable to estimate for general statistical purposes, but that is not the same thing. Every 'concession' not being a right is simply a present of a part of the State income given, at the cost of the treasury, to A, B, C, and D.\* It may be highly useful and proper to make the present; but to *ignore* it is essentially to obscure the public accounts.

When we consider how largely forest administration in India is dependent on the fact that it pays its ways, it is nonsense to say that the State income is 73 or 74 lakhs a year, when in fact it is 73 paid into the exchequer *plus* another 73 given away in kind to private persons, villagers, etc. Nor is the fact in the least altered by the fact that the concession may be part of an inducement to colonists to settle and so to benefit the land revenue. People are often induced to cultivate by the offer of a canal cut, but no one thinks of *not showing the cost of the cut* on that account.

And I may add, in conclusion, that if a small fee (which might be in the form of an adhesive stamp) on all commission, *pattas*, or grants were required, it would be useful as a check. It would also be well if a small, even a nominal, annual rent or '*redevance*' were charged for concessions; it would emphasize the distinction between a concession and right; and it would greatly help in the record of the number and consequent valuation of concessions; the fees, etc., realized being *part* of the value to be recorded.

B. H. BADEN POWELL.

*Oxford, 1891.*

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\* This might be said practically to be not the case when the produce is given to a few local residents, which produce *could* not be otherwise sold, exported, or utilized; but such cases are rare.

# NOTE

REGARDING

## PAPER-MAKING INDUSTRY IN INDIA,

BY

L. LIOTARD,

DEPARTMENT OF REVENUE AND AGRICULTURE, GOVERNMENT OF INDIA.



SIMLA:

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1883.

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# INDUSTRIAL SURVEY OF KOLHAPUR.

## CHAPTER I.

### INTRODUCTION.

1. The Kolhapur territory lying between  $17^{\circ}-10'-45''$  and  $15^{\circ}-50'-20''$  North latitudes, and  $74^{\circ}-44'-11''$  and  $73^{\circ}-43'-16''$  East longitudes, is situated in the South of the Bombay Presidency and is the most important State in the Southern Maratha Country being ruled by the younger branch of the family of Shiwaji, the founder of the Maratha Empire. It is bounded on the North by the Varna river which separates it from the Satara Collectorate; on the East, by the river Krishna and Dudhaganga, the Patwardhan States of Miraj and Sangli and the Chicodi sub-division of Belgaum; on the South, by the Belgaum Collectorate, and on the West by the Sahyadri range which separates it from the Sawantwadi State and the Ratnagiri Collectorate. Besides his main territory there are five isolated groups of villages, 4 to the east and one to the west. Of the four eastern groups Rayabag is a little to the North of the east, close to the Terdal Taluka of the Sangli State; the Pattankudi group is close to Nipani, and the Basapur group is close to Pachhapur in the Belgaum Collectorate. The Katkol group including the Torgal Jahagir lies far to the South-east of the territory close to the Ramdurg State in the Belgaum Collectorate. The western group belongs to the Bawada State and lies to the west of Bawada below the Sahyadri, within Ratnagiri limits. Including these isolated groups, the whole territory has an area of 2855.1 square miles, of which 2225.5 belong to Kolhapur proper and 629.6 belong to the feudatory States. Of 2,225.5 square miles belonging to Kolhapur proper 612 square miles are alienations, and the whole territory had in 1891, a population of 9,13,131 or 319.8 per square mile distributed over 1,965 towns and villages with a gross revenue of about Rs. 40,00,000 including feudatories and other alienations.

The territory consists of Kolhapur proper divided for administrative purposes into 6 Pettas:—Karwir, Alte, Shirol, Gadinglaj, Panhala, and Bhudargad, and the four chief feudatory States of Ichalkaraji, Kagal, Vishalgad, and Bawada whose Chiefs exercise independent jurisdiction within their limits. The details as regards area, towns and villages, population, revenue, &c., of each of these sub-divisions are given in the following statement:—

*STATEMENT giving area, population and revenue of the principal divisions.*

| Division.                | Area in square miles. | TOWNS AND VILLAGES.   |            |                    |            |            |            |        |            | Occupied houses. | Population. | Population per square mile. | Land revenue including alienations. | Land revenue per head. | LAND.     |             |          |     |          |     |
|--------------------------|-----------------------|-----------------------|------------|--------------------|------------|------------|------------|--------|------------|------------------|-------------|-----------------------------|-------------------------------------|------------------------|-----------|-------------|----------|-----|----------|-----|
|                          |                       | With more than 2,000. |            | From 500 to 2,000. |            | Below 500. |            | Total. |            |                  |             |                             |                                     |                        | Arable.   | Non-arable. | Jungle.  |     |          |     |
|                          |                       | State.                | Alienated. | State.             | Alienated. | State.     | Alienated. | State. | Alienated. |                  |             |                             |                                     |                        |           |             |          |     |          |     |
| 1) Karwis ... ..         | 287.8                 | 8                     | 2          | 45                 | 26         | 89         | 15         | 93     | 43         | 25,515           | 1,51,597    | 527.6                       | Rs. 8 11 2                          | a. p. 3 5 0            | 1,53,386  | 23          | 24,999   | 3   | 9,735    | 1   |
| 2) Panhala ... ..        | 469                   | 3                     | 1          | 66                 | 21         | 99         | 12         | 168    | 34         | 20,098           | 1,16,967    | 249.4                       | Rs. 1 8 2                           | a. p. 4 0 2            | 2,08,368  | 38          | 69,954   | 37  | 23,238   | 19  |
| 3) Alte ... ..           | 182.2                 | 21                    | 3          | 14                 | 10         | ...        | 1          | 35     | 14         | 18,033           | 1,08,883    | 597.6                       | Rs. 4 4 2                           | a. p. 14 11 0          | 1,19,675  | 5           | 17,758   | 10  | 2,100    | 13  |
| 4) Shirol ... ..         | 311.6                 | 8                     | 8          | 21                 | 18         | 11         | 5          | 35     | 29         | 13,573           | 1,05,665    | 339.1                       | Rs. 7 7 3                           | a. p. 1 0 1            | 1,87,029  | 16          | 19,027   | 11  | 3,267    | 21  |
| 5) Gadinglaja ... ..     | 487.4                 | 5                     | 3          | 94                 | 56         | 17         | 50½        | 56     | 109½       | 21,621           | 1,27,849    | 262.3                       | Rs. 1 4 2                           | a. p. 4 0 2            | 2,56,421  | 24          | 60,363   | 6   | 4,802    | 27  |
| 6) Phudargad ... ..      | 488                   | 2                     | ...        | 52                 | 21         | 92         | 27         | 146    | 48         | 15,892           | 94,290      | 198.2                       | Rs. 5 3 2                           | a. p. 6 0 1            | 1,77,448  | 1           | 75,222   | 22  | 59,593   | 18  |
| Total Kol. Proper ...    | 2,225.6               | 42                    | 17         | 232                | 150        | 258        | 110½       | 593    | 277½       | 1,14,732         | 7,05,251    | 316.9                       | Rs. 13 13 8                         | a. p. 5 8 5            | 11,02,320 | 23          | 2,56,720 | 9   | 1,01,787 | 19  |
| 7) Vishalgad ... ..      | 121                   | 2                     | ...        | 12                 | 4          | 32         | 16         | 46     | 20         | 5,960            | 31,347      | 258.2                       | Rs. 0 7 2                           | a. p. 1 10             | ...       | ...         | ...      | ... | ...      | ... |
| 8) Bawada ... ..         | 187                   | 2                     | 1          | 19                 | 11         | 27         | 9          | 48     | 31         | 7,876            | 43,770      | 319.5                       | Rs. 4 11 0                          | a. p. 14 3             | 88,334    | 24          | ...      | ... | ...      | ... |
| 9) Kapahi ... ..         | 85                    | 2                     | ...        | 6                  | ...        | 2½         | ...        | 10½    | ...        | 2,583            | 13,226      | 377.9                       | Rs. 10 0 3                          | a. p. 4 2              | 18,232    | 2           | ...      | ... | ...      | ... |
| 10) Nagal ... ..         | 128.7                 | 6                     | ...        | 31                 | 5          | 4          | 1          | 40     | 6          | 8,565            | 53,272      | 413.9                       | Rs. 10 0 3                          | a. p. 5 5 5            | 78,955    | 3           | ...      | ... | ...      | ... |
| 11) Jochalkaranji ... .. | 207.9                 | 8                     | ...        | 17                 | 4          | 35         | 14         | 60     | 18         | 11,488           | 66,865      | 319.2                       | Rs. 8 9 2                           | a. p. 4 1              | ...       | ...         | ...      | ... | ...      | ... |
| Total, feudatory State   | 629.6                 | 19                    | 1          | 85                 | 34         | 100½       | 40         | 20½    | 65         | 38,474           | 2,07,880    | 330.1                       | Rs. 2 8 1                           | a. p. 15 6             | ...       | ...         | ...      | ... | ...      | ... |
| Grand Total              | 3,855.1               | 61                    | 18         | 317                | 174        | 358½       | 150½       | 780½   | 342½       | 1,51,206         | 9,13,131    | 319.8                       | Rs. 15 4 2                          | a. p. 7 0              | ...       | ...         | ...      | ... | ...      | ... |

The Poona-Belgaum road passes nearly north and south through the territory and divides it into two unequal portions, one a rugged tract of hills and valleys to the west, known as the hill-top Konkan or Konkan-Ghaut-Matha, a wet and cool region; and the other, a more open block to the north-east known as the plain or Desh, a hot and dry region. The western portion includes the Petas, Karwir, Panhala, Gadinglaj, and Bhudargad and the States of Vishalgad, Bawda, Kagal, and the Ajre Taluka of the Ichalkaranji State. This part is mountainous and rugged, and more than half the area consists of hills, more or less high, and of barren table-lands. The extent of arable land is very limited, especially in the Bhudargad and Panhala Petas and the Bawda and the Vishalgad States, being less than that of the non-arable. The people are exclusively agricultural in their pursuits, the rainfall is copious, making the wet season trying, the principal crops being rice, nagli and wari. The land, too, is not very fertile, but crops seldom fail for want of rain. These remarks apply almost to every village in this portion except small portions of the Karwir and the Gadinglaj Talukas, and the Kodoli—Sarud. portion of the Panhala Peta which enjoy a more temperate climate, a more fertile soil, and a moderate but never-failing rainfall, the principal crop being jowari and the population following both agricultural and industrial pursuits.

In the eastern portion which consists of the Alte and the Shirol Petas together with the outlying sub-divisions of Rayabag and Katkol Mahals, the Pattankudi and the Basapur groups of the Gadinglaj Division and the Ichalkaranji Taluka, of the Ichalkaranji State, the country is rather flat, the soil is black and rich, and the extent of arable land is considerable, being more than 80 per cent. The principal crops are jowari, cotton, and tobacco. The climate is dry and salubrious though rather hot. But the rainfall being neither copious nor very regular, the district is subject to drought and scarcity. Here the population is both agricultural and industrial, the number of industries to be found in this part being larger and more various than in the other. If a line were drawn from Sarud on the Varna in the Panhala Peta to Sangrul in the Karwir Peta, and from Sangrul *via* Gargoti to Nesari in the Gadinglaja Peta, there is a total absence of industries to the west of this line with the exception of two solitary ones, namely, lacquer work at Patgaum and Bangdi making at Padali both in the Bhudargad Peta, while all the industries which exist in the territory seem to be contained on the other side of the line. The majority of the population of the territory, however, would appear

spent in the several divisions and the number of villages visited was as follows:—

| No.        | Name of the division. | No. of days spent. | Places visited. |
|------------|-----------------------|--------------------|-----------------|
| 1          | Karwir                | 18                 | 19              |
| 2          | Panhala               | 24                 | 37              |
| 3          | Alte                  | 17                 | 15              |
| 4          | Shirol                | 20                 | 13              |
| 5          | Gadinglej             | 34                 | 25              |
| 6          | Bhudargad             | 29                 | 48              |
| 7          | Vishalgad             | 11                 | 14              |
| 8          | Bawda                 | 4                  | 6               |
| 9          | Kapshi                | 4                  | 1               |
| 10         | Kagal                 | 10                 | 5               |
| 11         | Ichalkaraji           | 9                  | 7               |
| Total..... |                       | 180                | 190             |

Of the 190 places, 94 were visited for purely industrial inquiries and 96 for forest and mineral ones, and also for finding out what localities were specially adapted or suited for the cultivation of aloe, coffee, tea, cardamom, &c.

Special attention was paid only to the most important industries, such as weaving of cotton-cloth, cumblee-weaving, parched rice-making, oil-pressing, sugar-refining, dyeing and some minor but useful ones such as lacquer work, bangdi-making, &c., all others being very insignificant and not worth the time and expense involved in the inquiry about them.

Like industrial centres, I visited large trade centres as well as large weekly markets on market days in order to estimate the consumption of local and foreign industrial products, and to see which of them could be locally manufactured on a larger scale. At important markets arrangements were made for enumerating the number of people that visited the market from outside and for making a rough valuation of the industrial products, cattle, and sheep sold. I likewise visited important shops wherever they existed and saw what kinds of industrial products were sold, and took care to ascertain the quantities of manufactures that were imported from the neighbouring manufacturing towns like Shahapur, Belgaum, Rabkawi, Akak, &c., on the borders of the territory, and were capable of being locally manufactured. I even paid flying visits to many of these manufacturing and trading towns on the borders, to try if I could find out what special advantages they possessed and in what way some of their manufactures could be introduced in our territory, and which of our products could find a ready sale there. Among such places the following may be mentioned:—  
Rabkawi, Terdal, Hangandi, Shahapur, Belgaum, Ramdoorg.



Chicodi, Nipani, Wenkanmudi, and Ratnagiri. At all the shops and weekly markets the paucity of purely Kolhapur industrial products was well-marked.

As already mentioned, the climate and situation of the Bhudargad Peta, and the southern portion of the Panhala Peta, and of the Bawada and Vishalgad states combine not only to make the people purely agricultural in their pursuits, but militate strongly against the introduction of any manufacturing industries. The district is however rich in mineral and forest resources which can well be utilised to give the people a profitable occupation. I therefore visited the principal localities of the minerals pointed out by the Geological Survey and also the principal parts of the forests, to find out what room there was for developing the mineral and forest resources of the province and for introducing mineral and forest industries. I also visited many other localities in order to see if the soil, climate, rainfall, &c., would suit any new agricultural industries, such as the cultivation of coffee, tea, aloë, cardamom, betel-nut, potatoes, &c., and whether any of them could be introduced to engage the surplus population.

5. At every industrial centre, I visited every industrial house, saw the plant used, the articles turned out, and estimated the cost of the plant and the prices of the raw material required and of the articles prepared. I marked out such of the workmen as struck me to be possessed of skill and able to take to superior work, inquired what difficulties lay in their way and whether they could introduce improvements if assisted. I also tried to find out if a particular locality possessed special advantages or disadvantages for a particular trade. Opportunity was also taken to call together by appointment, people engaged in the different trades, and the leading men of the places and to elicit, by questions, information on points like the following, and to take it down in writing, thus partially carrying out the suggestion made by the Industrial Association for taking evidence:—

(1) Whether indigenous or imported raw material was used; (2) whence it was procured; (3) where the produce was sold; (4) whether the trade was carried on with borrowed capital or otherwise; (5) if the former at what rate of interest; (6) whether a particular industry had suffered in competition with foreign manufactures; (7) if those engaged in any of the industries could be induced by a promise of assistance from the State to improve their trade; (8) whether they carried on their respective trades throughout the year or only a part of it; (9) if the latter, how they maintained themselves during the remaining period; (10) whether they could procure the raw material on credit, and how much more than the cost price they had to pay in doing so, &c., &c.

At some large places the co-operation and sympathy of the people was solicited by explaining to them the object of the Government in making the

inquiry and what assistance it was prepared to give for the encouragement and development of local industries. Among such places may be mentioned Gadinglaj, Halkarni, Ajre, Shirgaum Kapshi, Shirol and Kodoli.

Though it was originally intended to ascertain, along with this inquiry, the condition of the agricultural classes in the territory, and, with this object, information about the indebtedness, &c., of the cultivators was collected from every village, the industrial inquiries hardly left any time for devoting to this subject, beyond testing in a few places how the returns were filled in and how the debts were ascertained. It is for the State to consider the question of completing this inquiry. What little I have said about the condition of agriculture and the cultivating classes is based on the information supplied by the village and district officers, and on the statistics available in the annual reports.

Before concluding this brief account of the survey work done in the districts, I may be allowed to make a suggestion for the collection of information about the industries in the province and the indebtedness of the agricultural classes on future occasions. As this can be satisfactorily done only by house to house visitation, if industrial returns were issued for being filled in by the enumerators on the occasions of the general census, this information can be periodically collected without much extra expense. It will not be necessary to check these returns on the last night.

I must here acknowledge with thanks the assistance rendered to me by the Mamledars and Karbharies who, or their head clerks, travelled with me in their respective subdivisions and by the feudatory chiefs of Vishagad, Bawda and Ichalkaranji, and latterly, the Chief of Kagal, after his installation. The cheerful help given by all these has contributed in no small degree to the satisfactory termination of the inquiry.

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## CHAPTER II,

## INDUSTRIAL CONDITION OF THE TERRITORY.

The information collected and the inquiries made have served to confirm the belief in the absence of any great industrial activity in the territory. Most of the population is occupied in agriculture and the few industries that exist are not very important or thriving. According to the late census more than 75 per cent. of the population would appear to be engaged in agriculture and pasture, and only 9·8 per cent. is engaged in one industry or another; but the information now collected still reduces this percentage. The discrepancy is due to the fact that in the census returns nearly as many females as males are returned as engaged in industrial pursuits. Though females do help the males in certain industries such as spinning, weaving, tanning, pottery, rope-making, parched rice-making, dyeing, bamboo-working, &c., this is not true of industries like iron, brass and copper-work, carpentry, goldsmith's work, Karajgar's work, &c. Statistics will have to be collected to determine with certainty the exports of purely industrial products, though from the quantities produced they cannot be large. Only five such products, *viz.*, inferior sarees, cumblees, parched rice or churmure, sugar and country oil would appear to be exported to any extent. The proportion of the first is very small, large quantities of inferior sarees from Rabkawi, Gokak, and Venkanmurdi being imported for sale at all the markets, not to speak of the superior cloth which is exclusively supplied from outside. The population of this extensive territory has to look outside its limits for the majority of articles, other than food supplies required for their consumption, especially the finer sorts. The rail-borne statistics available for last year show the total imports by rail to be 520,422 maunds, of which 153,092 maunds were purely industrial products. Add to this the quantity borne by road which in the absence of reliable figures and available statistics cannot be laid down even approximately, though there can be no doubt that it is very large.

2. The following list enumerates the different industries worthy of the name carried on in the State. Their number is about 20 and they give employment to 23,138 hands. The total of investments in the purchase of crude machinery and plant is roughly speaking about Rs. 1,70,900, while the working capital which here means only what is required for buying raw materials is Rs. 15,19,608 and the value of the articles turned out in a year is Rs. 24,56,641.

| No. | Name of the Industry.      | No. of looms, factories, furnaces, &c. | Capital invested in erection. | Working capital. | Value of the articles turned out in a year. | Hands engaged. |
|-----|----------------------------|--|-------------------------------|------------------|---|----------------|
| 1   | Weaving ... ..             | 3,032                                  | 68,310                        | 7,59,662         | 10,48,360                                   | 7,871          |
| 2   | Blanket-making ... ..      | 596                                    | 5,653                         | 41,029           | 87,011                                      | 1,343          |
| 3   | Tanning ... ..             | 138                                    | 2,907                         | 15,960           | 39,831                                      | 293            |
| 4   | Pottery ... ..             | 1,045                                  | 3,805                         | 21,775           | 1,15,178                                    | 3,312          |
| 5   | Oil-pressing ... ..        | 912                                    | 44,999                        | 3,62,415         | 5,31,384                                    | 1,871          |
| 6   | Rope-making ... ..         | 272                                    | 245                           | 2,106            | 5,863                                       | 525            |
| 7   | Parched rice-making ... .. | 135                                    | 292                           | 51,650           | 74,210                                      | 332            |
| 8   | Bangdi-making ... ..       | 3                                      | 30                            | 100              | 500   | 21             |
| 9   | Dyeing ... ..              | 77                                     | 2,078                         | 17,600           | 1,72,975                                    | 155            |
| 10  | Sugar-refining ... ..      | 49                                     | 6,125                         | 1,65,000         | 1,85,000                                    | 844            |
| 11  | Leather work ... ..        | 1,259                                  | 4,223                         | 41,589           | 1,02,841                                    | 2,055          |
| 12  | Bamboo work ... ..         | 176                                    | 341                           | 4,808            | 12,675                                      | 311            |
| 13  | Founding ... ..            | 18                                     | 110                           | 866              | 2,062                                       | 44             |
| 14  | Gunnycloth-making ... ..   | 18                                     | 18                            | 70               | 375   | 25             |
| 15  | Paper-making ... ..        | 3                                      | 375                           | 1,300            | 2,390                                       | 17             |
| 16  | Goldsmith's work ... ..    | 677                                    | 10,916                        | 9,227            | 20,850                                      | 916            |
| 17  | Carpentry ... ..           | 1,499                                  | 14,827                        | 20,380           | 48,186                                      | 2,459          |
| 18  | Smithery ... ..            | 417                                    | 4,960                         | 1,881            | 4,800                                       | 676            |
| 19  | Karagar's work ... ..      | 26                                     | 491                           | 1,390            | 3,150                                       | 40             |
| 20  | Coppersmith's work ... ..  | 16                                     | 195                           | .....            | .....                                       | 23             |
|     | Total ..                   | 10,363                                 | 1,70,900                      | 15,19,608        | 24,56,641                                   | 23,138         |

The average rate of wages is from annas two to four per diem except in the case of goldsmiths, carpenters, and karajgars, who earn from annas 4 to 8, but do not find work during the whole year. Three or four annas per diem is as much as skilled hands can obtain in other trades like weaving, dyeing, oil pressing, Bangdi-making and leather work.

During the monsoon months the majority of these either cultivate the land on their own account or work as agricultural labourers. Very few of the industrial classes have any capital of their own. They generally borrow money at a pretty high rate of interest for buying raw materials. Their plant and machinery are crude and have undergone no change or improvement in the course of the last hundred years or two. In very few cases do large capitalists care to invest their money in these industries, because the residue of profits left after paying all the expenses, such as the price of the raw material, the interest on the sum invested in buying machinery and the raw material, &c., and the wages of the workmen engaged, is nominal. All that the industrial classes get, are the wages for their work. They are suffering from the competition of foreign goods, the labour required for their hand productions remaining the same, the prices are much lower than before. The production of many articles, which once gave employment to a

large number of hands, has stopped altogether; for instance, paper, iron-work and cotton-yarn; and that of others has considerably diminished, such as oil, rough and fine cotton-cloth, sugar, leather, saddlery, dyed yarn, &c.

On account of the disturbed times in the Kolhapur territory during the last century, Kolhapur possesses but few large capitalists who can advance capital and buy the products and thus maintain some useful industries. For this reason no industry is in a thriving condition, the industrial classes have not improved, and the margin of profits has become very narrow.

Weaving is the most important industry in the State and engages more than 7,871 hands. Pottery comes next with 3,312 hands, not because it is more paying than other industries, but because the cost of carriage prohibits the import of the ware. More than 2,459 hands are engaged in carpentry, 2,055 in leather work and 1,871 in oil-pressing. Next comes blanket or cumblee-weaving, another useful and important industry of the Province, with 1,343 hands. Goldsmiths' work engages 916 and sugar-refining 844 hands; smithery 676 and rope-making 525; parched rice-making 332, bamboo-work 311, tanning and dyeing engage between 150 and 300 hands, while the number of hands engaged in other industries is less than 100 each, and they are therefore insignificant.

3. The people engaged in all these industries may be divided into three classes:—(1) those that work for wages or make articles to order only and not for sale in the market. (2) those that turn out articles for local consumption only; and (3) those that produce articles for local consumption as well as for export.

Carpenters, blacksmiths, goldsmiths, karajgars, coppersmiths, &c., belong to the first-class, to which may also be added masons and patharwats. None of them invest any capital in their respective trades, or turn out articles for sale in the market. They get pretty high wages, from annas 6 to 10 per diem, and on account of the increase in population and the number of State public works are not badly off for want of work. All the gold and silver articles to be seen, exposed for sale in the bazars of the City of Kolhapur and a few other places are the work of goldsmiths in the service of capitalists engaged in the trade. The large number of copper and brass utensils required for local consumption is all imported, and it would appear very strange that there should be only three or four brass and copper workers in the whole territory making such articles for sale, though the large demand for them is met by the heavy imports from Poona, Satara, Rajapur, and Sangli. The same is the case with the carpenter's and smith's work. All wooden articles of furniture, such as chairs, tables, beds, &c., and also iron articles seen in the bazar are all imported from Bombay. The work of the carpenters and smiths in villages is confined to repairing agricultural implements for a share of the produce of the farms.

Bamboo-work, confectionery, saddlery, perfumery, founding, spinning, gunnycloth and padam-making and paper-making come in the second class. These with potters, tanners and leather-workers supply local wants only.

With the exception of the first two and the last which are expanding with the increase of the population none of them are thriving. Pottery, though it requires little capital for materials, shows little improvement in working, though there exists a large number of suitable earths for superior ware. Bamboo-work is also in the same primitive state and hardly supplies all local wants.

To the third class belong weaving of cotton-cloth, cumblee-weaving, rope-making, oil-pressing, parched rice-making, sugar-refining, dyeing and bangdi-making. These are all important industries and deserving of more consideration than some of those in the first two classes. None of them is at present thriving in the territory, nor does any turn out articles in quantities sufficient for considerable export except parched rice and sugar, several thousand worth of which are exported annually to Nipani, Sangli, Sankeshwar and Belgaum. Only a few places situated on the borders of the territory, such as Wadgaum and Minche in the Alte Peta, Sarud and Kodoli in the Panhala Peta, Halkarni, Kapshi, Hamidwada and Katkol of the Gadinglaj Peta, export a few of their fabrics to places in the adjoining territory in the British districts; of these Katkol is the only place that exports a large quantity of inferior sarees to the Konkan, those from the rest being very small. Cumblees, especially those made by the Sangars of Wadgaum, Kapshi and Kolhapur are largely exported to the Konkan and those by the Dhangars of Rayabag to Bagewadi in the Belgaum Collectorate. Dyed yarn from Shirgaum in the Gadinglaj Peta goes to Chicodi and Nipani. But a very large quantity of the same is imported into the territory from Gokak and Rabkawi. Oil and sugar are largely exported to Rajapur and Nipani and thence to Bombay. Ropes and bangdies in very small quantities go to a few adjoining places in the British territory, while bangdies from Ghotgiri in the Belgaum Collectorate and from two other places in the Satara Collectorate are largely imported.

4. The western portion comprising Bhudargad and Panhala Petas, Bawda, and Vishalgad States and Ajre Taluka is territorial distribution of industries. purely agricultural and very poor in industries, Weaving of cotton-cloth is carried on at Kodoli, Sarud and a few other places of the Panhala Peta contiguous to the Alte Taluka, at Madilge, Turmbe and Walve contiguous to the Kagal State, at Uttur and Bahirewadi of the Ajre Taluka, situated within the limits of the Gadinglaj Peta, at Rasiwade of the Bawda State situated within the limits of the Karwir Peta, and at Mahagaum of the Vishalgad State, situated within the limits of the Gadinglaj Peta. Cumblee-weaving is done at Waghapur and Shenganm in the Bhudargad Peta, at Male, Kalhe, and Sarud in the Panhala Peta, and at

Kapshi and Malkapur in the Vishalgad State. Parched rice-making, which is an important industry in the Bhudargad Peta, is confined principally to Walwe, Kumbharwadi, Shengaum, and Nishnap in the Bhudargad Peta, Rashiwade of the Bawda State and Ajre of the Ichalkarnji State. Oil-pressing is to be found in many places. The pottery of Shengaum in the Bhudargad Peta is important. Lacquer work is done at Patgaum and Shiwdao and bangdies are made at Padali in the same Peta. All other places with the exception of these twenty out of 598 villages in this part are without any industries, Bawda and Vishalgad States being the worst in this respect.

The eastern portion which comprises the Petas of Karwir, Alte, Shirol, Gadinglaj and Kagal State and the Ichalkaranji taluka of the Ichalkaranji State however compensates for this dearth of industrial activity in the western and offers opportunity for its development. Karwir Peta with the large town of Kolhapur stands first with the largest number of industries, many of which are important. Gadinglaj comes next with almost all the industries found in the Karwir Peta except parched rice-making and paper-making. Alte Peta comes next but it has got the largest number of important industries. Considering its area, it can boast of the largest number of looms for weaving cotton and woollen cloth, of tanneries, of leather-workers, rope-makers and sugar-refiners, the last being quite peculiar to it. Shirol comes next. Though it is the easternmost division, it cannot boast of as many industries as the preceding ones. Cumblee-weaving and rope-making are important industries in this Peta. Next in the order of importance are the Kagal State and the Ichalkaranji Taluka of the Ichalkaranji State. Though the latter has the largest number of looms in the whole territory, and silk and cotton yarn dyeing is extensively carried on at Ichalkaranji, it is poor in all other industries. This eastern portion, unlike the western, yields little of mineral and forest produce. The encouragement of its industries, therefore, might receive attention side by side with the development of the forest and mineral resources of the other portion.

Another point to be noted in connection with the distribution of industries is their preponderance among the urban population as distinguished from the rural. The former exceeds the latter in the eastern parts and *vice versa* in the western. There are only 9 places in the whole territory having a population of 5,000 or more each: Kolhapur, Ichalkaranji, Shirol, Kagal, Gadinglaj, Wadgaum, Kodoli, Nandni, and Katkol. All these are great industrial centres except Gadinglaj, which is only an important trading centre.

5. Before dealing with each industry in detail a general bird's-eye-  
 General remarks on the view of each of the ten divisions will not be  
 Divisions. uninteresting—

The Karwir Peta is situated between the Ghaut Matha and the Deah, the climate is temperate and rainfall generally copious, and crops seldom fail

from drought. The principal crops are rice, sugar-cane and ground-nut which are exported largely. The country is hilly and the soil is not very fertile. Its population is mostly agricultural, and it is the town of Kolhapur alone with a population of 45,608 that gives it its industrial importance. The leading industries are cotton-weaving, oil-pressing, cumblee-weaving, pottery, and parched rice-making together with tanning, leather-work, goldsmith's work, smithery, carpentry and bamboo-work which are carried on especially in the town of Kolhapur. There are no less than 575 looms of which 40 belong to the Momins who produce inferior turbans, tape or Nawar and Padam, and the rest weave inferior sarees, pasodies, and dhotars. Kolhapur is the great weaving centre in the Peta with 284 looms. Next to it are Sangrul with 88 looms, Padali with 44 and Kandgaum with 32. Padli and Varange possess special facilities and local advantages for its development. But Kolhapur, Padali, and Kandgaum weavers are skilful and can improve with encouragement. Many of these can take to superior weaving. Cumblee-weaving is carried on principally at the town of Kolhapur by Sangars. At Washi there are a few Dhangars who weave cumblees. Others simply keep sheep and complain of want of pasture-grounds. Parched rice-making is found only at two places:—Nigwe and Shirse. Besides Kolhapur town, Sangrul, Tikpurli, Dhamud and Kandgaum are large trading places, having weekly markets attended by about 2,173, 3,709, 2,585 and 1,600 persons respectively. The first three deserve to be connected with the trunk roads by small branches. I visited 18 places in this Peta, viz., Kolhapur, Sangrul, Padali, Varange, Kandgaum, Haladi, Parite, Shirse, Ghotawde, Hasur, Shirol, Beed, Nigwe, Wagarbaw, Washi, Dhamud, Kote, and Horawde and saw the condition of 545 looms.

Alte Peta, situated on the borders of the Satara Zilla in the eastern or Desh division of the territory, is the smallest but the most important division in the whole territory. The climate is neither very hot nor very cold. The rainfall is moderate. It very rarely suffers from drought. Though hilly, the soil is black and fertile. The principal crops are jowari, sugar-cane, tobacco, ground-nut and turmeric. It has much irrigation. Its population is both agricultural and industrial. It has all the industries of the preceding Peta except parched-rice making, and in addition sugar-refining, fibre-extracting and rope-making are pretty thriving industries. Cotton-weaving is carried on at 24 places out of 49 villages, and has the largest number of looms, viz., 700 in the whole territory. The weavers here produce the same fabrics as at Kolhapur. But the Momins produce better turbans. Wadgaum, Rendal and Hupri are great weaving centres with 250, 80 and 63 looms respectively. Pattankodoli and Wadgaum have got a large number of cumblee weavers, and the former carries on a large trade in cumblees during its annual fair in Ashwin. Wadgaum, with a population of 5,554 souls in this Peta, is the largest trading centre in the whole territory, and carries on a respectable import and export trade. Its weekly market is attended by more than 12,000



people from outside. Cotton-weaving, fibre-extracting <sup>in the</sup> can be developed. This division is well provided with roads and and Rendal deserve to be connected with the trunk roads. <sup>the</sup>

Gadinglaj Peta is situated in the south-eastern portion of the <sup>part</sup> te. includes the outlying Katkol Mahal, situated near the Ramdurg Sta. Belgaum Collectorate. Gadinglaj proper is partly desh and partly ( Matha. The climate is temperate, rainfall copious, and crops seldom from drought. The country is hilly, but the soil is black and fertile. The principal crops are jowari, ground-nut, coriander and tobacco. Irrigation scanty. The population is principally agricultural. It has got few industries but they are important; the leading industries being weaving of cotton-clo and cumblees. Gadinglaj, the head-quarter of the taluka, is the only large town with more than 5,000 people. But it has no industries except oil-pressing. Halkarni, Kapshi, and Hamidwada are large weaving centres. Halkarni cotton and silk sarees enjoy a reputation equal to that of Shahapur ones Shirgaum, situated in the detached Pattankudi group, is a great dyeing centre enjoying a reputation equal to that of Gokak and Rabkawi. Cumblee-weaving is a thriving industry. Kapshi is noted for its Sangar cumblees and Mutnal and Harali for Dhangar cumblees. Nesari and Khandal are noted for Gonpat. Carpet-weaving is a new industry started at Gijawne near Gadinglaj. Pottery is also an important industry in the Peta on account of its good pottery clay. The tiles and pots are superior. The tile industry can be developed in the Basapur group. There are good iron workers at Gadinglaj and Hebal and their nut-crackers are well known. Gadinglaj is the only large trading town in this Peta. Next to it is Katkol. Gadinglaj and Katkol weekly markets are attended by more than 5,000 and 3,000 people respectively from outside.

Katkol Mahal enjoys a hot and arid climate. The rainfall is scanty and fitful, and crops often suffer from drought. The soil is black and sandy but fertile. The principal crops are bajri, jowari, wheat and gram. This Mahal includes the Torgal Jahagir. The population is mostly agricultural. Its industrial importance is due only to the large weaving trade carried on at the town of Katkol which is one of the great weaving centres in the territory, having 252 looms, more than half the total number in the Peta. This division contains the slate and limestone mines, as well as the manganese. This division and the Basapur group can admit of large Tarwad plantations. This sub-division is well provided with roads.

Though the Kolhapur-Amboli road runs through Gadinglaj proper, it is ill-provided with internal communication to large trading centres. Halkarni, Kapshi, Nesari, and Shirgaum deserve to be connected with the trunk roads.

Shirol Peta, together with its detached portion of Ravabag is the eastern-

from drought. The Rayabag portion is within the limits of the Chicodi which are exports. The climate is hot but salubrious. The rainfall is scanty and this fertile. Its principal crops are jowari, cotton, gram, karda and tobacco, and leading principally exported. This Peta is principally agricultural and a few industries exist. Weaving of cotton cloth, dhangar cumblees and pressing are the principal industries. Nandani and Shirol are the only large towns with more than 5,000 people, and these only possess a large number of cotton looms. But the weavers are not skilful. Khidrapur is the only place where there are skilful weavers. Herwad and Shirol have got good cumblee-weaving Dhangars, many of whom keep sheep and goats, but complain of want of pasture grounds. Shirol and Nandni have got a few skilful brass workers.

The soil of the greater portion of the Rayabag division is not so fertile and rich. It has no industries and consequently the people are in a wretched condition almost like those of Bhudargad and Panhala. Dhangar cumblee-weaving is the chief industry of this division. Many of these are skilful and this craft can be developed here, as also that of cotton weaving. Nasalampoor and Sawandatti have got skilful weavers. Dhangars complain of want of wool. Manufacture of saltpetre which has been stopped lately can be revived at Sawandatti and Nilaji. Tarwad and Babul plantations can flourish in this Peta.

Panhala Peta is one of the three largest divisions bordering on the Sahyadri. It occupies the whole of the north-western portion of the territory excepting the Vishalgad State. It is full of hills and the extent of good arable land is small. The climate is cool, and rainfall is copious. But the soil is poor and almost all the people inhabiting villages within 12 miles of the Sahyadri depend entirely for their livelihood on Kumri cultivation. The principal crops are nagli and rice. The unarable waste land is 56,000 acres and the jungle is more than 30,000 acres, while arable land is about 1,63,000 acres for a population of 1,16,967. Its jungles are rich and forest revenue is respectable. There is a small coffee plantation on the Panhala hill and another is being tried at Parali. There are many localities where coffee, tea, and cardamoms can be grown.

The small tract between Sarud and Kodoli on the banks of the Varna contains weavers. Weaving industry is thriving at Kodoli and the weavers are skilful and they deserve to be encouraged. With this exception there is no industry whatever in the whole Peta and the climate is not favourable for introducing any new one. Only some forest and agricultural industries can be thought of. Except iron and a few clays no minerals are found.

There is no large trading place in the whole Peta. Large weekly markets are held at Sarud, Bajarbhogaum, Kodoli, and Panhala, those of

the first two being attended by more than 5,000 people and those of the latter two by more than 2,000 people each.

Bhudargad Peta occupying the whole of the south-western portion of the territory and bounded on the west by the Sahyadri is the largest division of the territory. It is also very hilly but contains a large extent of rice-land. A large number of the people bordering on the Sahyadri depend for their livelihood on Kumri cultivation. The extent of the waste land is considerable as also the forest area, though the latter does not contain as much timber as Panhala. The climate is cold and rainfall copious. The principal crops are rice and nagli, the former being largely exported. The population is principally agricultural and the industries are few and insignificant.

Parched rice-making is the only important industry in the Peta and Walwe is its principal seat. Shengao pottery is good. Weaving of cloth and cumblees is done at a few solitary places. Lacquer work at Patgaum and Bangdi-making at Padali are two other solitary but useful industries. Thus it is nearly as poor in industrial activity as Panhala.

The only minerals found are Plaster of Paris at Tambyāchiwadi, iron ore in Ain and Main Ghols, and earths for colour-washing round Bhudargad fort. It is however rich in forest products and they yield a large revenue. Coffee and cardamoms grow well and their cultivation can be largely introduced in this Peta, and this Peta possesses more sites suitable for such plantations.

Shengao, Sarawde, and Walwe are the only three large market towns and their weekly markets are attended by 5,000 persons at the first two and by 3,000 at the last.

This Peta is wanting in means of communication. It has no good opening to the sea except the Phonda Pass.

Kagal State situated in the eastern part of the territory is quite similar to Gadinglaj. Cotton and cumblee-weaving and parched rice or churmura making are the only important industries. Kagal, Chikhali and Murgud have got some looms and Yamage is the seat of churmura industry. All the villages of this State have the advantage of the vicinity of the large towns of Kolhapur and Nipani. Any industry if encouraged can easily thrive. Cotton industry can be developed in the State.

\* Ichalkaranji State consists of the Ichalkaraji Taluka in the eastern part with 11 villages and the Ajre Taluka in the western part with 67 villages. Lát, Arag, Manerajuri, and Ichalkaranji are large industrial places in the former, and Ajre, Uttur, and Bahirewadi in the latter. The first division is similar to Shirol and the second resembles Bhudargad. The people of the Ichalkaranji division are both agricultural and industrial, but those of

the Ajre Taluka are only agricultural. Weaving is the only important industry in the State and Ichalkaranji, Uttur and Bahirewadi are the great weaving centres with looms, 303, 67 and 66 respectively, and there are many skilful weavers at all of them. Silk and cotton yarn dyeing is another useful industry carried on at the Ichalkaranji town.

Bawada and Vishalgad States are situated close to the Sahyadri and resemble in all respects the Panhala and the Bhudargad Petas. The inhabitants of both almost entirely depend on Kumri, there being very little rice land. The forest resources are valuable and they can be developed and new forest and agricultural industries can be introduced. The only industries that are found in these States are cotton-weaving at their outlying villages—Rashiwade of the Bawada State and Mahagaum of the Vishalgad State, and cumblee-weaving at Malkapur and Kapshi of the Vishalgad State. Malkapur and Rashiwade have large weekly markets. Salva hill of the Bawada State below the Ghauts is said to contain copper, slate, and corundum.

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## CHAPTER III.

## COTTON AND WOOL WEAVING AND DYEING.

*Weaving.*

This is the most important and leading industry in the province as it is the only one which engages a respectable amount of capital, finds employment for a respectable number of workmen and turns out goods of a respectable value, though the export of its products is well nigh insignificant as well it might be when it is noted that they fall somewhat short of local consumption. When one considers the extent of the whole territory and its population and their wants, even this leading industry cannot but strike as poor in the light of the following statistics:—There are about 3,032 looms in the whole province (a number smaller even than that of Hubli or Shabapur taken singly), employing about 7,871 hands and annually producing cloth of the value of Rs. 10,48,360. The average production of this necessary article is therefore a little in excess of one rupee per head of the population. This calculation is based on the supposition that all the looms keep working throughout the year which is not always the case. The average production per loom is Rs. 345·75 or Rs. 133·2 per head employed, i.e., Rs. 11·1 per head per mensem. The total cost of the raw materials is Rs. 7,59,662 or Rs. 250·5 per loom. Deducting this cost of materials required for per loom, Rs. 95·25 only are left as the wages and profits per loom per annum, or Rs. 7·94 per loom per month or about 4·2 annas per day per loom. Counting one anna as the wages of a woman and half an anna that of a boy, the weaver, the most skilful worker on the loom does not earn more than annas 3 per diem on an average. The average number of hands engaged on each loom is 2·6, thus the earnings of a loom per month when divided into 2·6 hands gives Rs. 3·05 per head per month which is not even as much as is earned by a common labourer in the Public Works Department. Still less is it than what a mason or a carpenter earns.] Of these 3,032 looms, 230 belong to the Momins who weave turbans. These looms are small and their erection has cost only Rs. 1,220 or a little more than Rs. 5 per loom. These employ only 441 hands and produce cloth worth Rs. 37,324. Deducting from this the price of the raw material, viz., Rs. 27,400 there is left a sum of Rs. 9,924 as the wages of 441 hands or a little more than Rs. 22 per head. Thus it will be evident that the condition of this class of weavers is wretched. Their ware is not much in demand. They principally produce tape or nawâr and inferior turbans worth from annas 12 to Rs. 2 worn by the Kunbees. These turbans are now being fast driven out by Patakás made of coarse gray shintings or Turkey red. The looms of the Momins therefore have barely work enough for three or four months and they are forced to work as labourers for the rest of the year. They have lately taken to turning out turbans of dyed yarn with false lace which find a ready sale during the

marriage season of the Kunbees. There are some among them who can turn out stuffs like those of Yewale and Chander, and are capable of improvement. This class being very poor can hardly obtain loans at low interest. The best way to improve their condition is by advancing them money at a low rate of interest and by inducing them to take to saree, chintz and dhoteer weaving all which command a large sale. Some of them are even prepared to go to Yewale and Poona to learn the superior lace work required for turbans.

Deducting the looms of the Momins there remain 2,802 looms belonging to Koshteas and Salees. Of these, about 100 or 200 remain idle for a greater part of the year and are in work only when there is a brisk demand for cloth, as in the marriage season. The rest work for 6 days in a week or about 10 months in the year. Every weaver has always to go to the nearest market every week to buy raw materials and to sell his products. He works the loom himself, while his wife prepares the yarn, and they are both assisted by the son or daughter. They work morning and evening, but sometimes they have to keep working even at night. Heavy rain in the beginning of the monsoon interferes with their work for several days in the western part. Very few of them have capital of their own, and they either borrow small sums at 15 or 18 per cent. interest or buy yarn on credit agreeing to return the price with half or one anna per rupee over and above the bazar rate; or take advances from Shimpees who generally buy their wares for sale and charge a commission of an anna or six pies in the rupee. Thus as a class, these weavers are involved in debt and what little property they possess is, in a majority of cases, mortgaged to the Sawkar.

*Statement giving the number of looms, &c., in the territory.*

| Number. | Name of the Division. | No. of Looms.  | Capital invested in erection. | Working Capital. | Value of the Articles turned out in a year. | Hands engaged. |
|---------|-----------------------|----------------|-------------------------------|------------------|---|----------------|
| 1       | Karwir ... ..         | { Koshteas 535 | Rs. 10,309                    | Rs. 1,31,625     | Rs. 2,09,209                                | 1,390          |
|         |                       | { Momins 40    | 84                            | 3,090            | 4,960                                       | 69             |
|         | Total ... ..          | 575            | 10,393                        | 1,34,715         | 2,14,169                                    | 1,459          |
| 2       | Panhala ... ..        | Koshteas 249   | 7,465                         | 52,288           | 71,842                                      | 709            |
| 3       | Alte ... ..           | { Koshteas 550 | 10,605                        | 1,39,385         | 1,90,140                                    | 1,418          |
|         |                       | { Momins 150   | 901                           | 18,285           | 23,364                                      | 291            |
|         | Total ... ..          | 700            | 11,506                        | 1,57,670         | 2,13,504                                    | 1,704          |
| 4       | Shirol ... ..         | { Koshteas 268 | 7,052                         | 63,260           | 85,953                                      | 596            |
|         |                       | { Momins 32    | 185                           | 5,575            | 7,150                                       | 64             |
|         | Total ... ..          | 300            | 7,237                         | 68,835           | 93,103                                      | 660            |

## Statement giving the number of looms, &amp;c., in the territory—continued.

| Number. | Name of the Division. | No. of Looms.        | Capital               | Working  | Value of                           | Hands engaged. |
|---------|-----------------------|----------------------|-----------------------|----------|------------------------------------|----------------|
|         |                       |                      | invested in erection. | Capital. | the Articles turned out in a year. |                |
|         |                       |                      | Rs.                   | Rs.      | Rs.                                |                |
| 5       | Gadinglaj ... ..      | Koshteas 510         | 13,193                | 1,49,065 | 1,83,180                           | 1,444          |
| 6       | Bhudargad... ..       | „ 39                 | 828                   | 5,940    | 7,400                              | 102            |
| 7       | Vishalgad ... ..      | „ 9                  | 80                    | 600      | 900                                | 12             |
| 8       | Bawda ... ..          | „ 39                 | 555                   | 10,224   | 15,588                             | 110            |
| 9       | Kagal ... ..          | Koshteas 129         | 3,168                 | 35,150   | 48,104                             | 354            |
|         |                       | Momins 8             | 50                    | 450      | 1,850                              | 17             |
|         | Total ... ..          | 137                  | 3,218                 | 35,600   | 49,954                             | 371            |
| 10      | Ichalkaranji ... ..   | Koshteas 477         | 13,735                | 1,44,125 | 1,98,720                           | 1,300          |
|         |                       | Total Koshteas 2,802 | 67,090                | 7,32,262 | 10,11,036                          | 7,430          |
|         |                       | Total Momins 230     | 1,220                 | 27,400   | 37,324                             | 441            |
|         |                       | Total Looms 3,032    | 68,310                | 7,59,662 | 10,48,360                          | 7,871          |

It will be seen from the figures in the above table that the 2,802 looms belonging to Koshteas have taken about Rs. 67,090 to erect them. This gives Rs. 23·9 as the cost of each loom. This is the price of an ordinary loom intended for plain cloth, or plain silk bordered sarees made of rough yarn. But a loom intended for weaving sarees and dhoteers of finer yarn with variegated silk borders costs about 40 or 50 rupees, as it requires additional appliances. The total working capital, *i.e.*, capital required for buying raw materials, such as yarn, silk, &c., is Rs. 7,32,262, *i.e.*, Rs. 261·3 per loom. The total production of these looms is cloth worth Rs. 10,11,036 or Rs. 360·8 per loom. Deducting from this the price of the raw material the net gain per loom per annum is Rs. 99·5 or about Rs. 8·3 per month. If interest on the working capital and also on the cost of the plant is calculated at 12 per cent., the annual gain per loom will be driven to Rs. 90. The price, however, which the weavers pay for the raw material is generally the credit price, in other words it includes interest. Deducting, therefore, only the interest on the cost of the plant, the net gain per loom is about Rs. 97·4 per annum or Rs. 8·1 per month. From Rs. 8 to 10, therefore, is the net amount of wages which men, engaged on each loom, earn.

We shall now see how much does each hand engaged in this trade earn. These looms engage in all 7,430 hands, and their net earnings after

deducting the price of the raw material and the interest at 12 per cent. on the cost of the plant are Rs. 2,70,735. This gives Rs. 86.4 per annum or Rs. 8.03 per head per month, which means a little less than two annas per head, which is little short of miserable. The 7,430 hands engaged on 2,902 looms consist of equal number of men, women and boys or girls. The average number of hands on each loom is 2.6 and they earn between them from Rs. 96.6 to Rs. 100 per annum, or Rs. 8 per month or about annas 4 per diem. Taking the wages of the woman and the boy to be only half an anna each, the weaver the most skilful of the three can have for his share annas 9 per diem, which is equal to what a common coolie earns. Even allowing for discrepancies in this calculation his daily earnings cannot exceed annas 4, which is indeed too low for a skilled labourer like a weaver to attract more capital or more hands either so as to expand or improve the industry.

2. It is consequently at present confined to the weaving of coarse white cloth or khadi and pasodi, large and small waist cloth or rumals, chintz and women's sarees or Lugadees with or without silk borders. For the first three kinds country yarn spun by women or mill-yarn from 6s. to 10s. is used; and for chintz and sarees dyed mill-yarn, 16s. to 20s., is used. The sarees which these looms turn out are generally inferior and are only used by women of the lower classes, and are woven of mill-yarn 20s., and rough silk. The average price of the white piece is from one to two rupees and that of a saree is from Rs. 2½ to 3½. There are only a few weavers at Kolhapur, Kodoli, Halkarni, Uttur, Bahirewadi, Hamidwada and Kapshi who make dhoteers with plain silk borders from yarn 20s. The weavers of Halkarni are very skilful and can produce sarees of a finer yarn like those of Shahapur. But their number is very limited. There are some weavers at Uttur in the Ajre Taluka and some at Kolhapur who can weave the finer counts. Lately, the Chief of Ichalkaruji has encouraged some weavers at Ichalkaruji to take to superior weaving, and they have begun to produce sarees like those of Shahapur.

The general complaint of the weavers, that the industry has declined and the number of looms decreased during the last 40 or 50 years owing to the introduction of machine-made cloth, is not absolutely well founded, as the falling off in the number of looms is not so great, nay in some places it has even increased. The prices, however, have declined more than 30 or 35 per cent. and the demand is also less.

3. In Major Graham's statistical report on Kolhapur published in 1856, the number of looms in the territory is stated to have been 1,642. Assuming that his means of collecting information were reliable and figures accurate, this number would appear to have increased by 1,160 or about 70 per cent. When it is noted that the population, has

Comparison between  
the State of the industry  
now and that in 1856  
and 1881.



during the same period increased from 5,46,156 to 9,13,131 or 67 per cent., the number of looms has more than kept pace with the increase in population.]

The same would appear to have happened in the last decade. According to the information collected for the *Gazetteer* in 1882, the number of looms was 2,444; 206 of which belonged to Momins and 2,238 to Koshtees. Though the information cannot claim to be as correct and reliable as that given in these pages, as the latter is obtained by house-to-house visitation, yet supposing it to be approximately correct, there would be an increase of 588 or 24 per cent. in the number of looms, i.e., slightly in excess of the increase in the population. But those of Momins have increased only 11 per cent.

The following table compares the present number of looms in the different divisions with their number about 12 years ago:—

| No. | Name of Division.   | No. of looms in 1882. | No. of looms in 1893. |
|-----|---------------------|-----------------------|-----------------------|
| 1   | Karwir ... ..       | 323                   | 575                   |
| 2   | Panhala ... ..      | 203                   | 249                   |
| 3   | Alte ... ..         | 588                   | 700                   |
| 4   | Shirol ... ..       | 242                   | 300                   |
| 5   | Gadinglaj ... ..    | 508                   | 510                   |
| 6   | Bhudargad ... ..    | 53                    | 39                    |
| 7   | Vishalgad ... ..    | 9                     | 6                     |
| 8   | Bawda ... ..        | 45                    | 39                    |
| 9   | Kagal ... ..        | 141                   | 137                   |
| 10  | Ichalkaranji ... .. | 337                   | 477                   |
|     | Total ...           | 2,444                 | 3,032                 |

Taking the figures for 1882 to be correct, it will appear that the industry has grown to some extent in the whole of the eastern part and also in the Panhala Peta in the western.

The absence of statistics about previous decades makes further comparison impossible. On future occasions of census, as suggested before, such information can be collected without much additional trouble or expenditure by issuing industrial returns along with the census ones, which need not even be checked or corrected on the last day of the enumeration

as in the other case. It strikes me as strange that census statistics should be so deficient in information about the industrial classes or that no attempt should have yet been made to make up this deficiency. Though the information thus collected may not be very accurate so far as the value of the products, capital engaged, profits realized, &c., are concerned, it will be a safe guide to know the number of industries, number of looms, factories, &c., and the hands engaged in each.

4. With respect to the capability of the weaving industry to supply local wants, assuming that its products are made use of by the lower classes especially of the pastoral and agricultural population only, whose number according to the last census is 6,89,568, and taking Rs. 3 as the average cost of clothing per head of agricultural population, more than 20 lacs of rupees worth of coarse cloth such as is produced by these looms, would be required for local consumption. As mentioned above, the value of cloth turned out by all the looms in the province does not exceed Rs. 10,48,360. As there can be no question about the correctness of this figure, it is evident that 10 lacs of worth of coarse and superior cloth are imported into the province for the use of the agricultural and pastoral population. Supposing that three or four lacs worth of this is supplied by the mills, there is still scope for producing 5 or 6 lacs worth of coarse cloth for local consumptions which will find employment for more than 4,000 hands. More reliable and correct statistics about the import of coarse cloth into the territory would go far towards strengthening this belief in the capabilities of this industry for development and increase.

In the absence of such statistics my visits to the weekly markets and shops in large places tend to a general inference that large numbers of inferior sarees from Rabkawi, Wenkanmurdi, Gokak, Sankeshwar, and Ramdurg are imported for sale in the Province, as are also all Khans for cholees, the value of the latter being about 2 to 3 lacs of rupees. The import of coarse sarees is small and that of white coarse dhoteers, pasodies and khadi is almost nil, all being locally produced and supplied.

All superior sarees and dhoteers and other kinds of cloth used by the upper and middle classes are imported from Shahapur, Nagpur, Hubli, Poona, Narayan Petha and Ahmedabad, besides those supplied from the mills. The import of this kind of cloth into the town of Kolhapur alone is more than 3 or 4 lacs worth, Shahapur itself supplying worth a lac and a half.

Besides the agricultural and pastoral population of 6,89,568 referred to above, there are 2,23,568 people who require per head on an average Rs. 7 worth of clothing consisting of English and Indian Mill products and superior fabrics turned out by the hand looms of Shahapur, Nagpur, Ahmedabad, Narayan Petha, &c., that is, in the aggregate more than 15 lacs worth.

If our looms are improved so as to turn out at least 5 lacs worth of these, they will find employment for another 4,000 hands.

Thus it will be seen that by this two-fold rough calculation for the two classes of the people, the total average imports of rough and superior cotton piece-goods in our territory annually amount to more than 25 lacs of rupees. Let us see how it agrees with the calculation for the total population. The standard of average consumption of piece-goods fixed by Government per head of total population is from Rs. 4 to 6. Taking Rs. 4 only as the annual cost of clothing per head, the total cost of clothing required for the population of the whole territory will be more than 86½ lacs of rupees. Deducting from this the total production of the territory, viz., about Rs. 10½ lacs, the imports of the value of 26½ lacs of rupees are required to meet the total consumption. This estimate is nearly the same as the preceding one.

Important and minor  
weaving centres.

5. There is only one place in the whole province which maintains more than 300 looms, and that is the town of Ichalkaranji having 303 looms.

The number of places having more than 200 looms is three, viz., Kolhapur City with 284, Wadgaum with 251, and Katkol with 224. There is only one place with more than one hundred looms and that is Kodoli in the Panhala Peta having 130. There are thus 5 great centres of weaving industry in the province. At the first four places the principal products consist of women's blue sarees, and at the last Kodoli, of both sarees and dhoteers. There are many skilful weavers at Kolhapur and Ichalkaranji who can weave superior cloth, and some also at Wadgaum and Kodoli, which last enjoys a reputation for producing plain silk-bordered dhoteers and uparnies which can be improved still further. There are only 8 places having between 60 and 100 looms, viz., Sangrul with 88 looms in the Karwir Peta; Minche with 99; Rendal with 88, and Hupri with 63 in the Alte Peta; Halkarni with 74 in the Gadinglaja Peta; Nandani with 72 in the Shirol Peta; and Uttur with 67 and Bahirewadi with 66 in the Ajre Taluka of the Ichalkaranji State. Of these, Sangrul and Nandani produce coarse pasodies and dhoteers, and their trade in these is thriving. The looms at Minche all belong to Momins, but Uttur and Bahirewadi produce coarse sarees as well as plain silk-bordered sarees, uparnies and dhoteers for which they are as well noted as Kodoli in the Panhala Peta. Halkarni with 74 looms contains the best weavers of cotton and silk cloth in the whole territory. They can produce both sarees and dhoteers like those of Shahapur. With the exception of Sangrul, Nandani and Minche, the weaving of superior cloth might be improved and developed at all other places with advantage. There are only four places having between 40 and 50 looms, viz., Pádali with 40 looms in the Karwir Peta, Bhádole with 40 in the Alte Peta, Kapshi with 40 in the Gadinglaj Peta, Chinchli with 43 in the Rayabag Mahal of the Shirol Peta, and

Sarud with 45 in the Panhala Peta. The weavers of Padali and Kapshi are especially good at dhoteers with plain silk borders. There are three places having between 30 and 40 looms each, viz., Kandgaum with 32 in the Karwir Peta, Hamidwada with 38 in the Gadinglaj Peta and Ráshiwde with 39 in the Bawda State. Kandgaum is good at sarees and Hamidwada at silk-bordered dhoteers. But Ráshiwde cannot produce anything better than pasodies. There are about 5 places having between 20 and 30 looms each, viz., Sawandati with 25 in the Rayabag sub-division of the Shirol Peta, Hasur with 23 in the Karwir Taluka, Ghotawde with 21 and Pattankodoli with 20 in the Alte Peta. Of these, the weavers of Sawandatti and Ghotawde deserve special mention as they equal those of Kodoli in their skill. There are 120 other places, each having looms below 20; of these, only Khidrapur (Shirol), Nasalámpoor (Rayabag), Khandál (Gadinglaj), Náwale and Jákhale (Panhala) have skilful weavers like those of Kodoli and deserve every encouragement. Khandal and Nesari in the Gadinglaj Peta are noted for ganny cloth-weaving and Nasalámpoor in the Rayabag and Chandargi in the Katkol Mahal produce the best padam in the State as does the town of Kolhapur.

6. The following table shows that against 26 places in the western portion of the State with 469 looms, there are 119 places in the eastern with 2,563 looms:—

*Western part.*

|                       | Panhala, | Bhudargad. | Vishalgad. | Bawda, | Ajre. | Total. |
|-----------------------|----------|------------|------------|--------|-------|--------|
| No. of places ...     | 16       | 4          | 2          | 1      | 3     | 26     |
| No. of looms ...      | 249      | 39         | 6          | 39     | 136   | 469    |
| Average per place ... | 15.56    | 9.75       | 3          | 39     | 45.3  | 17.65  |

*Eastern part.*

|                       | Karwir, | Alto. | Shirol. | Gadinglaj. | Kagal. | Ichalkaranji. | Total. |
|-----------------------|---------|-------|---------|------------|--------|---------------|--------|
| No. of places ...     | 26      | 25    | 16      | 37         | 9      | 6             | 119    |
| No. of looms ...      | 575     | 700   | 300     | 510        | 137    | 341           | 2,563  |
| Average per place ... | 22.1    | 28    | 18.75   | 13.8       | 15.2   | 56.8          | 21.53  |

7. Taking the Petas in the order of the number of looms mentioned, Alte stands at the head with 700 looms working in 25 places out of 49 villages in the Peta. Of these, 150 belong to the Momins and are confined principally to Minche and Wadgaum. The remaining 550 are owned by Koshtees and Salees who engage 1,413 hands and produce cloth worth Rs. 1,90,140. The products of this industry in this Peta consist principally of inferior sarees, inferior turbans, chintz and coarse pasodies and dhoteers. The chief weaving centres in the Peta are Wadgaum, Minche, Rendal, Hupre and Bhadole, of which the first, Wadgaum the largest town in the Taluka and one of the greatest centres of trade in the whole territory, takes the lead with 251 looms with a capital of Rs. 73,860 employing 720 hands and turning out cloth of the value of Rs. 1,91,189. Being situated on one of the borders of the territory it has the advantage of commanding the trade of some places in the adjoining British districts. Being the largest market town (from 10 to 12,000 people visit the weekly market from outside) it will afford many facilities for the improvement of the industry. There are many traders in the place who carry on extensive export and import trade, and their co-operation can be secured for the sale of the products. There are likewise some skilful weavers in the place and in its vicinity and many who are willing to improve and to take to superior weaving. Of the other centres in the Peta, Minche, Rendal, Hupri, and Bhadole have 99, 80, 63 and 40 looms respectively. Minche and Wadgaum have Momins, many of whom can produce turbans of a finer yarn up to No. 100. These, if they have sufficient encouragement, will improve to any extent and produce turbans like Yewale and Chander. Rendal, Hupri and Pattankodoli which contain good saree-weavers are all in a line close to one another and to the large market of Ichalkaranji, and the large dyeing centre of Shirgaum. Bhadole contains only weavers of coarse white cloth.

Blue-dyeing is carried on at Wadgaum and Rendal to some extent and yarn is purchased from the Bangars of Rabkawi and Gokak and occasionally of Shirgaum. They also make free use of English Turkey-red yarn. For dyeing blue they use indigo, Takala-seed and plantain ashes in the place of an alkali.

Next to the Alte Peta comes Karwir with 575 looms, of which 40 belong to the Momins of Kolhapur who produce inferior turbans and nawarape. Of the remaining 535 looms belonging to Khoshtees no less than 400 are in the City of Kolhapur, engaging 678 hands and producing cloth worth Rs. 1,22,000. Most of these produce inferior sarees with or without black borders, only a few producing white, coarse cloth, padam and chintz. There are Nilarees or blue dyers at Kolhapur who dye the yarn blue for them, while the red yarn used is mostly English. The country dyed red yarn is purchased from the Gokak Bangars who frequently visit Kolhapur with large quantities of it. There are some weavers in the place who

possess all the appliances for producing superior and fine silk-bordered sarees like those of Shahapur, which, however, cannot equal those of Halkarni and Kodoli. Next to Kolhapur comes Sangrul with 88 looms. All the weavers here produce rough coarse cloth and none of them have either the skill or the ambition to learn superior weaving. Padali, Ghotawade, and Varange have 40, 21 and 12 looms respectively. All the weavers at these three places are skilful and produce plain silk-bordered dhoteers and uparnies. Haldi and Kandgaum have respectively 12 and 32 saree and chintz looms. They are all prepared to take to superior weaving if encouraged.

Next comes the Gadinglaj Peta including Katkol Mahal and the Kapshi State, with 510 looms; of these, 208 belong to Gadinglaj proper, and 252 belong to the Katkol Mahal, and 50 belong to the Kapshi State. All these looms engage between them 1,444 hands and a capital of Rs. 1,49,665 and produce cloth worth Rs. 1,83,180 or nearly as much as Alte, though the latter has many more looms. This is explained by the fact that many of the looms in the Gadinglaj Peta produce superior and costly stuffs. The turn-out per loom per annum is nearly Rs. 359 and the average number of hands engaged per loom is a little more than 2.8. Therefore, the average gain per hand per annum is Rs. 128, or slightly in excess of the other Petas. Katkol commanding a pretty large export trade has a much higher production, *viz.*, sarees worth Rs. 467 per loom per annum. The average gain per head at Katkol is also a little higher than in other divisions.

In this Peta Katkol has the largest number of looms, *viz.*, 224. Next to Katkol, Halkarni has 74 looms, of which about 20 produce nothing but superior cotton and silk sarees. In point of skill, Halkarni takes the first rank in the whole territory, its weavers having carried off the first prize for silk sarees at the exhibition of 1891, even Shahapur taking the second place. The proximity to Shahapur and Wenkanmurdi, two great centres of weaving industry in the Belgaum Collectorate, and its favourable climate gives it natural advantages which have partly contributed to give it a reputation of its own for weaving. There are moneyed Sawkars in the place who are willing to develop and increase the industry if they receive help and encouragement from the State.

Next to Halkarni are Kapshi and Hamidwada with 40 and 38 looms respectively. Both these places have some skilful weavers who generally produce plain silk-bordered dhoteers of yarn from 20s. to 30s. Besides these four important weaving centres in this large Peta, there are 32 other places where this industry is carried on and where it can be increased. At Khaudal and Nesari, for instance, gonpat is woven but not all the year round. Likewise, cotton carpet-weaving is newly introduced at Gijawane by a member of the Patil's family who learnt it during his imprisonment

in the Kolhapur Jail, and has now started 4 looms with the requisite number of trained workers. A weaver at Chandargi turns out good Padam of which Páls are made.

Next to Gadinglaj comes the Ichalkaranji State including the Ajre Taluka with 477 looms. These have cost Rs. 13,735 to erect them, which gives Rs. 28·7 as the cost of each loom. The total production is worth Rs. 1,98,720 or Rs. 416 nearly per loom. Of these, 303 are in the town of Ichalkaranji itself, making it the largest weaving centre in the whole territory, though the products generally consist of inferior sarees worn by the women of the lower classes. The Chief, however, has tried to produce sarees and dhoteers like those of Shahapur by affording special encouragement and facilities to the weavers, and there are at present 25 looms which have quite succeeded so far; with its dry climate and its large population, a large weekly market, the extensive trade which it commands and above all with a well-educated and enlightened Chief like Baba Sabeel to look after its interests, the place bids fair to grow into an important and thriving centre, whose example might be followed with advantage in many other places in the Kolhapur State. The rough silk required for inferior sarees is dyed at the place, which is another advantage, and with the object of putting the finer silk within reach of the Koshteas, the Chief has encouraged the local silk-dyers to introduce fine silk-dyeing. He has likewise made a beginning of woollen and cotton carpet-weaving.

Next to the town of Ichalkaranji, Uttur and Bahirewadi in the Ajre Taluka with 67 and 66 looms respectively are other great weaving centres in the State. Both of them contain skilful weavers who are able to sell their articles at the large markets of Gadinglaj, Ajre and Kapshi and who deserve the attention of the chief, because except Halkarni, Uttur is the only place where I came across weavers making sarrees like those of Shahapur on their own account.

Next to the Ichalkaranji State comes the Shirol Peta with 300 looms. Nandani, Chinchali and Shirol are the only three great weaving centres in this Peta with 72, 43 and 39 looms respectively. Very few of the weavers are skilful and all are contented with their present lot so long as the small number of their looms turn out products which find a ready sale. Khidrapur, Sawandatti and Nasalampoor, though they have a smaller number of looms, possess more skilful weavers, who, however, cannot so easily sell their goods, being distant from large towns. They are well-to-do and some have capital of their own. All that is required to encourage them is a ready market for their silk bordered dhoteers which nearly approach those made at Shahapur.

Padam of an excellent quality which is greatly in demand at Kolhapur and other large towns is turned out at Nasalampoor and requires only to be widely known to shop-keepers to secure their large orders.

The Shirol Peta being a cotton-producing district, country yarn is largely made and also used for Pasodies, Khadies, coarse Dhoteers and Padam, as these articles are more valued when prepared from country yarn being stronger and more durable. If they can be made to find their way to the Kolhapur market, their ready sale will go far towards encouraging the weavers.

Next to Shirol comes Panhala Peta with 249 looms. This is the only division in the western portion of the territory where the weaving industry is carried on to some extent. The contiguity of the Alte Peta to the Sarud-Kodoli tract of Panhala has given it its importance in weaving industry. This tract alone contains all the looms. Of the 249 looms mentioned above, 130 looms are at Kodoli and 45 at Sarud. As a weaving centre, the former with its weavers of cotton and silk Sarees and Dhoteers as good as those of Shabapur, will rank with Ichalkaranji, Kolhapur, Wadgaum and Katkol. The adjoining villages like Návali and Jákhale have picked up some of this skill. But Kodoli has the following advantages in favour of the industry being developed. It has a population of 5,640, among whom are some big Sawkars. It is close to Wadgaum and Kolhapur and commands the trade of the whole of the Panhala Peta and the Malkapur State. The long standing of the industry in the place has made many trained hands available for working and preparing yarn for the looms. Next to Kodoli is Sarud with its 45 looms, which all produce coarse cloth made from English yarn 6s. to 10s. It commands, however, a large trade in Pasodies and Dhoteers for which it is noted.

Next to the Panhala Peta comes the feudatory state of Kagal with its 137 looms and with Kagal, Murgud, and Chikhali as important weaving centres in the State. Of these, Kagal and Chikhali have skilful weavers who require a little encouragement to make them take to finer work. This now rests with the chief who, it is hoped, may follow the good example of the Chief of Ichalkaranji.

As mentioned elsewhere, the Bhudargad Peta and the feudatory states of Bawda and Wishalgad are the poorest in point of weaving as their climate is prejudicial to its growth and there are no other circumstances which can favour its development. Bhudargad has got a few weavers at Madilge, Turambe and Walwe. Bawda has few at its village Rashiwda within the limits of the Karwir Peta, and Vishalgad has some at Mahagaum situated within the limits of the Gadinglaj Peta. Of these Madilge deserves mention as its weavers produce silk-bordered Dhoteers and Uparnies like those of Kodoli and Padali, all others produce only coarse Khadies and Dhoteers. Thus it will be seen that nearly half the territory is without any industries worthy of the name and its population is entirely dependent on agriculture for which also the scope is very limited on account of the hilly and sterile nature of the soil and the large area being occupied by forests.



8. From what has been stated above about the state of this leading and most thriving industry in the province, it will appear that the weavers, as a class, labour under the following disadvantages :—(1) Being poor, they have no capital of their own wherewith to buy raw material, and have, therefore, to borrow it at a usurious rate of interest, (2) the raw material is not close at hand, and (3) their products are not immediately saleable and when sold do not fetch reasonable prices. These difficulties interfere with their carrying on their trade from end to end of the year, and these have so reduced their earnings, that they generally live from hand to mouth and most of them are already in debt.

The chief remedies, then, to improve and encourage this industry appear to be—(1) to place capital at low interest within the reach of weavers, (2) to make raw material easily accessible, and (3) to find a ready sale for their products.

9. The first of these is easy for the State to carry out by making advances at low interest on proper security and stipulation for recovery. Take the case, for instance, of a weaver of cotton cloth who does not require more than 50-rupees to start his trade with and work the whole year. As things stand at present the interest alone on this sum at the usual rate (36 per cent.) is rupees 18, whereas, if the State advanced the sum, say at 6 per cent. on condition of repaying principal and interest in four years, the debt will be liquidated by four annual instalments of Rs. 15 each. Though at first sight such an arrangement strikes one, as being very reasonable and feasible and the weavers too on their own part will be only too glad to fall in with it, there are some difficulties in practically working it which must not be lost sight of. They are these :—Few of the weavers have either property or credit to offer as security and those who have it have already pledged it to money lenders. The sedentary nature of their occupation makes them feel the want of a stimulant after the day's hard work, and they, as a rule, indulge in excessive drinking whenever they have money in their pockets. But there is nothing to prevent the State from making advances to the industrial classes on the same terms and rules as Taccavi advances are made to the agriculturists. The existing agency of the Taluka and village authorities will suffice both for making payments and for the recovery of instalments and interest simultaneously with the collection of the land revenue. Such of the industrial classes as have houses or land or other property to offer as security and they form from 20 to 25 per cent. of the total number, will thus have an opportunity to improve their condition, and their example might induce others of their class to practise thrift and prudence. Supposing that out of the 8,000 hands or 4,000 families engaged in this trade, money is advanced to about a thousand, investment of the State will not exceed from Rs. 25,00

to 50,000 with .6 per cent. interest, i.e., at  $2\frac{1}{2}$  per cent. more than Government securities, and the weavers will secure a net gain of 30 per cent.

The weavers in the Karwir, Alte, and Panhala Petas are quite willing to receive such advances, but those in the Gadinglaj and Shirol Petas and the Kagal State would prefer having the raw material within easier reach and a more ready sale for their products. The weavers in the Gadinglaj Peta, for instance, will have no advances from the State, partly from fear of having any dealings with Government and partly because they can easily find the money for buying yarn if the yarn is there, provided the cloth they turn out is sold more expeditiously. The Kolhapur territory has not many Sawkars engaged in this trade as are to be found at Rabkawi and Shahapur, where their investments in the raw material and the purchase of cloth exceed lacs of rupees. To give weavers the same facilities, in consultation with Mr. Desai, Mamledar of Gadinglaj, who takes great interest in this question, I would beg to suggest that shops partly subsidised by the State and partly subscribed for by the people in the shape of shares be opened at large centres where weavers and other artisans would purchase their raw material and also sell their manufactures, the management being entrusted to the principal local merchants under the supervision of the Mamledar of the Peta. On putting this idea before the people at Halkarni, Gadinglaj and Shirgaum three large centres in the Gadinglaj Peta, they not only promised to raise the money themselves, viz., Rs. 3,000, 2,500 and 2,500 respectively, but actually started a shop of the kind at Halkarni by way of experiment, without even waiting for the Government subsidy. Raising the capital in this way from the people in small shares will not only enlist their sympathy and interest in the primary object of encouraging the local industries, but the shops will also have many customers. The connection of the State with the funds is to be only temporary till the managers are sufficiently educated to fall into the groove of working honestly for the attainment of the chief object in view, viz., patronising the artisans and manufacturers. What little profit the subsidy brings to the State might be utilised, wholly or partially, in encouraging and training weavers to produce superior cloth, the looms for which require more appliances, and are, therefore, more expensive. Kapshi, Kagal, Shirol, Kodoli, Gargoti, Shenagaum, Ajare and Katkol having promised funds, I have submitted with draft rules my proposal for the establishment of such shops at twelve large centres, which will require a total subsidy of Rs. 10,000 for a term of 5 years, and will work according to the rules drafted by Mr. Desai and myself for the guidance of the shop at Halkarni previously referred to.

These shops might keep both English and Country Yarn to be bartered for woven cloth or advance small sums of money for the purchase of Yarn at the debtor's discretion, in addition to other articles of Indian manufacture that are likely to sell. The Depôt at Kolhapur being central, those

in the district will form so many branches and feeders to it. It may appear impossible at first sight for the concern with such small capital to patronize all the looms in the territory, but if they adhere to the principle of "small profits and quick returns" their stock will not long remain on hand and more capital will follow. Besides local manufactures, the shops may keep other articles of Indian manufacture that are likely to find a sale.

Plain silk-bordered (Dabhan kathi) Uparnies of Yarn from 20s. to 30s., produced largely at Pádali, Kodoli, Náwali, Halkarni, Hamidwada, Uttur, Bahirewadi, &c., are in great demand at Kolhapur and other places on account of their durability. There being no cloth merchants to buy these in large quantities, except at Halkarni, their production is very limited at present. So also such Uparnies of Yarn from 40s. to 50s. are largely imported from Coimbatore and Benáres. These can be produced here. Such pieces prepared by the Halkarni weavers were found to be equal to those from Coimbatore. A third kind of cloth has been lately introduced at Kodoli and Padali in imitation of Mánjarpát, and is largely sold. Such plain cloth of Yarn from 20s. to 30s. looks like Mánjarpát, and, being more durable and stronger than the mill-product, is preferred by the lower and middle classes. Production of Chintz of finer Yarn from 30s. to 40s. can be encouraged with advantage, as such is largely imported and consumed for shirts, the one now produced in the territory of Yarn 20s. not being well suited. That which is at present produced at Halkarni, Kolhapur, Kodoli, Uttur, &c., of 20s. Yarn is as good as that of Chicodi, the original home of this industry. At these and other places a finer variety can be introduced if it can find a ready sale. The central shops can encourage and increase the production of all these varieties by giving large orders and finding markets for the same. These will meet local wants, and if the production increases, it can find an outlet towards Sangli, Miraj and the Konkan.

10. That the introduction of weaving superior Sarees, Khans and Dhoteers with finer yarn and silk is worth attention will be evident when it is noted that the imports of such kinds are worth more than 10 lacs of rupees from Shahapur alone, to say nothing of what comes in from Narayanpeth and Nágpur and the Khans from Gulédgood, Hubli, and Máribál.

A loom working 6 days in the week can on an average turn out Rs. 15 worth of such superior cloth or Rs. 600 worth in a year, taking the year to consist of only 40 working weeks. 400 such looms, therefore, producing more than 2 lacs worth, or a tithe of what is imported, will find permanent employment for about 1,500 hands.

The small quantity of such stuffs at present produced by some skilful weavers in the State cannot compete with the Shahapur articles for several

reasons, among which may be mentioned the following:— (1) Although stronger and more durable and therefore somewhat dearer, they have not the same finish; (2) The merchants with facilities for getting them in bulk from outside do not care to take them piece-meal on the spot; and (3) The difficulty common to all weavers of easily procuring finer yarn and silk. The depôts or shops will remedy these difficulties.

There are about 187 weavers in the territory who have entered into written agreements to start superior weaving if these difficulties are removed.

Of these 187, there are 126 in Kolhapur proper and about 61 in the feudatory States. Twenty-four of these being at Ichalkaranji and patronized by the Chief as mentioned elsewhere, have started the weaving of superior Sarees and Dhotees, showing the practicability of the proposal. It is hoped the Kagal Chief will follow this example, as there are some good weavers in the State ready to start superior weaving, if encouraged and assisted. The Ichalkaranji Chief arranged to give finer yarn and silk at cost price for the first few months and to buy the pieces prepared through a cloth merchant by advancing a certain sum to him. If the central shops be opened, this can be done more easily at many places. If some of these weavers require loans for buying superior looms fitted for this new work, these may be advanced up to Rs. 100 to 200 on the same conditions recommended elsewhere.

It will be desirable to induce some skilful weavers from Shahapur and its surroundings to come and settle in our territory by some special encouragement, as their presence will enable other weavers to learn the art. But none from Shahapur direct appeared willing. Some from Ramdurg and Nesargi seemed willing to go to Katkol and a few from Nesargi and Nipani appeared prepared to leave the place with their families and settle at Kolhapur if some special concessions were offered and work was provided. It will be worth while to ascertain and consider the terms. If any of the Kolhapur weavers succeed in inducing some of the skilful weavers from Gokak, Nipani, Shahapur and its surroundings to come and settle in our territory, they may be given some special encouragement and larger advances on the security of resident weavers.

The Carpet industry introduced at Gijawane and Ichalkaranji will receive an impetus and will increase when their ware will find a ready sale at the various shops. Though this industry was introduced in the Kolhapur Jail long ago, none had thought of introducing it outside till now, notwithstanding the large number of carpets annually imported into the territory. Padam and Gonpat are in great request. The best Padam is produced in the Rayabag and Katkol Mahals, while Khandal and Nesari are the chief seats of Gonpat industry. Neither of these finds its way into the Kolhapur

market. The shops at Rayabag, Katkol and Gadinglaj will be able to buy and send them to Kolhapur, and other places, and thus encourage its production.

Kharwa, so largely consumed in the territory, is all imported from Nagpur, Murgud and other places. This has been attempted with success at Shirgaum. Though the pieces at present produced are dearer than those imported, a little encouragement and a larger sale of their ware will enable the producers to bring down the prices. Such attempts at introducing new industries deserve special grants-in-aid, recommended by Mr. Warden in his paper on the 'Industrial Development of India' read at the late Industrial Conference. A system of grants-in-aid deserves to be started, and payments made to such new industries as may be established in the territory, giving employment to a certain number of people. Kharwa, carpet, and superior saree and dhoteer industries deserve such grants.

Thus by instituting industrial advances, by establishing depôts or shops at principal centres for the supply of the raw materials and the sale of the products, partly on the system of co-operation and partly subsidised by the State at the beginning, and by a system of grants-in-aid in special cases, the weaving industry can be encouraged and developed to a large extent.

11. For the supply of dyed yarn required for sarees and chintz to the depôts or shops, the dyeing industry at Shirgaum, the great dyeing centre in the territory, will require strengthening. The nucleus of a fund has been formed there by the Bangars and dyers themselves, who have subscribed about Rs. 2,000, and an additional thousand from the State will suffice to start a large depôt where large quantities of dyed yarn will be purchased and distributed, not only to all the depôts in the province, but also to the weavers at Nipani, Chicodi and Sankeshwar in the neighbourhood. Here only blue and red dyeing is done. Yellow, purple, and green dyeing is not known. Students might, therefore, be sent to the Baroda Kala-Bhawan to study dyeing in all its phases.

12. Another way of improving this industry is to introduce it in the local Technical School by engaging a weaving teacher and by setting up 5 or 6 looms to teach superior cotton and silk weaving. The unoccupied stalls near the school might be utilised for this purpose. As

A loom shed that the students in the carpentry class of the Technical School might be utilised for this purpose. As the worth of such work sufficient to maintain them after they have left year to consist of the scholarships awarded to the class might be usefully during more than 6, as weavers can always employ trained men by starting permanent employment.

The small quantity partly be attained by introducing superior weaving in weavers in the State local jail. The instance of cotton carpet weaving

mentioned previously would warrant a belief in the success of the measure. It is said to have been tried and found unworkable, but if it has succeeded fairly on a smaller scale in the jail, like that of Sangli, the experiment is worth re-trying. It will not only tend towards the development of the industry itself, but provide an additional profitable occupation to convicts after their liberation from prison.

13. Among the ways of fostering local industries is to secure the largest customer for their products. As the State is generally the largest, it ought to be the best customer of local industries, especially when they stand in need of improvement and development. Strict instructions ought to be issued to the Khasgi and other departments to replace, whenever possible, foreign manufactures by local products. These will be easily supplied by the proposed depôts.

It is true, this is even now partly done. But when the State wants articles it goes to the market to make its purchases, merchants procuring them from whatever place they can get them. By confining State purchases to the depôts this can be easily attained.

14. One more way in which this industry can be encouraged is to improve the existing looms and also the wheels used for spinning yarn. This will be a natural outcome of weaving, forming a branch of the local Technical School.

Perhaps it will be more advantageous to introduce the latest improved hand-looms and spinning-machines from Europe, a few students from the State being sent to the Ripon Textile School attached to the Victoria Jubilee Technical Institute at Bombay to receive training for handling and working such machines.

An enterprising person brought one English loom and tried it here in the Technical School, under the supervision of its superintendent. It could be worked with hand-power and gave good results. It could do twice as much work as our ordinary loom, and the cloth turned out was better and more uniform. He now intends ordering 10 or 12 looms and working them by a small Gas Engine. I should, however, prefer looms which can be worked by hand or foot power. The State ought to assist the trials of such English looms in the Technical School, as such will be within the reach of our poor weavers and become as common as sewing-machines.

15. This reform in our local looms and spinning wheels can be best effected by the establishment of a small spinning and weaving mill at Kolhapur. We need not launch into a very grand enterprise, but start one with a small capital, say a lac or two, with a small number of spindles and looms just enough to supply the

wants of local weavers in point of yarn, and these of the lower people in point of mill cloth to some extent. The three thousand looms in our territory require yarn worth more than 6 lacs of rupees. If the local mill can supply this much and a portion of the mill cloth required for consumption in the territory, it will be enough for our purpose and it can give employment to from 500 to 1,000 hands permanently and stop the import of yarn and cloth to some extent. Our central shops can easily effect a sale of all the products of the mill. It may be a joint stock concern and the State may simply encourage it by subscribing a respectable number of shares and by affording every facility as regards site, water, &c., &c.

There is no reason why it should not succeed here. Hubli Mill, though it does not enjoy any special advantage like Gokak, has been paying well. The only advantage it possesses is that it is in the midst of the cotton districts. The cotton cultivation in our territory is respectable. No less than 20,000 acres are under cotton crop, and, at the rate of 250 lbs. per acre, it produces about 2,300 tons of cotton. Besides we have cotton-producing Sangli and Miraj districts close to our doors and not very distant. We can easily import some skilful superintendents from Bombay. Thus, excepting coal, we have every advantage over Bombay. I think, therefore, that a small cotton mill can succeed here and can give employment to a large number of hands, and can effect a revolution in the weaving industry in the districts. As it will supply only what is imported at present from outside, it will not affect in any way the present weavers in the territory. I hope, therefore, the question of establishing a small cotton mill at Kolhapur deserves consideration, as it will facilitate the working of fibre-extracting and rope-making machinery and also of the cumble-loom recommended further on.

16. To sum up all my proposals in one place:—

- (1) Small advances should be made to weavers on security at 6 per cent. interest, the money to be repaid in four or five years ;  
     Summary.
- (2) About 12 or 13 central shops should be established in the territory with the object of supplying raw materials to the local weavers and other artizans, and buying their products for sale ;
- (3) The dyeing industry at Shirgaum should be developed and strengthened to supply dyed yarn and silk to the whole territory ;
- (4) An attempt should be made to produce superior cloth which is largely imported from outside, by making larger advances, supplying raw materials at cost price for the first one or two months and by other special concessions to skilful weavers ;
- (5) Weaving should be introduced in the local Technical School and also in the Jail for training men to produce superior cloth ;

- (6) The improvements should be effected in the indigenous looms and new improved hand looms and spinning wheels should be introduced ;
- (7) The State should become the chief customer of local products ; and
- (8) Lastly, a cotton spinning and weaving mill on a small scale be established at Kolhapur.

#### *Yarn-dyeing.*

17. This does not occupy that high position among the industries of the territory, which its importance entitles it to. Dyeing and its great centre. Rough silk yarn is dyed yellow, and red at Ichalkaranji, and Shirgaum in the Gadinglaj Peta, but finer silk is nowhere dyed in the territory. Cotton yarn for cloth is dyed blue, black or red. Blue and black dyeing is done by a class called Nilarees, who exist at some of the places where blue saree-weaving is carried on extensively, for instance, at Kolhapur, Wadgaum, Shirgaum, Rendal, Ichalkaranji and Katkol; the total number of vats in all these places being about 60. Of these, Shirgaum in the Gadinglaj Peta is not only the most important in this respect, but also famous for dyeing ordinary red and Turkey-red, like Gokak and Rabkawi, by a class called Bangars, some considering its dyes superior even to those of the latter. It has no less than 50 houses of Bangars, 24 of which still own dyeing vats. The import of English Turkey-red yarn and the coal-tar dyes have been gradually starving this industry, though Nipani and Chicodi, which have between them some 500 or 600 looms, principally patronize the Shirgaum dyers. I have for this reason recommended above the strengthening of dyeing industry at this place.

Green, yellow and purple yarn is supplied by foreign countries, as the native dyers can fix only the red and blue dyes and shades of the latter. Some of them therefore might be sent to the Baroda Dyeing School to learn what they do not know, as recommended elsewhere.

#### *Cumlee-weaving.*

18. Though not so extensive as cotton-weaving, yet producing an article which is necessary to every person of the lower and middle classes, this industry comes next in importance to cotton-weaving. It is not only in a fairly thriving condition, but is also said to command some export trade. Cumlee-weavers consist of two classes :—*Sangars* and *Dhangars*. The former do not keep sheep, nor do they spin yarn, but prepare cumlees for sale from ready-made yarn spun by the Dhangars on small spinning wheels. The twist of this yarn is not firm, nor is it very thick, and the cumlees, therefore, though cheaper and in great request among the poor agriculturists in the western portion of the territory and in the Konkan, are

The state of the cumlee-weaving industry, its varieties and centres of production.



less durable than those made by Dhangars. They are exclusively made for export. The Sangars are principally confined to Kolhapur, Wadgaum, Male, Kapshi (Gadinglaj Peta) and Kagal in the eastern part, and to Sarud, Kaihe, Shenagaum, Tarle and Kapshi and Malkapur of the Vishalgad State in the western part, and when their supply of yarn is sufficient, they work throughout the year.

Most of the Dhangars keep sheep and goats, and in their leisure hours spin yarn on a flat circular piece called Châti, and occasionally also weave cumblees. There are, however, many Dhangars in the Shirol and Gadinglaj Petas and the Rayabag Mahâl. Of the former, whose sole occupation consists in buying wool, spinning yarn and weaving cumblees, which being stronger and more durable than those prepared by Sangars, fetch a much higher price, and are, as a rule, in great demand with the agricultural population in the eastern part. A Sangar and his wife can between them produce a cumblee a day from ready yarn, while a Dhangar and his wife take four or five days to prepare one piece from yarn which they have generally to twist themselves, as it is seldom sold in the market. Thus two persons generally take eight or ten days to prepare one cumblee worth from Rs. 2 to 3, and forty cumblees is the utmost that can be turned out in a year.

The great centres of this industry (Dhangar cumblees) are in the Shirol and Gadinglaj Petas, of which the following are important:— Shirol, Herwad, Chinchali, Nandanj, and Rayabag in the former, and Mutnal and Harali in the latter. The Rayabag Mahâl of the Shirol Peta contains the largest and the most skilful number of Dhangar weavers and produces the best cumblees, which are exported for sale to Bagewadi. Mutnal and Harali in the Gadinglaj Peta, Waghâpur in the Bhudargad Peta, Pattankodoli in the Alte Peta, and Washi in the Karwir Peta enjoy some reputation of Dhangar weavers; so also there are some at Kagal along with a number of Sangars.

19. The total number of cumblee looms in the territory is 536, engaging 1,343 hands or 2.2 hands per loom. Of these, about 150 belong to Sangars and the rest to Dhangars, with a little difference in their construction. The erection of all these looms has cost Rs. 5,653 or 9.5 per loom. This machine is therefore very much less expensive than the cotton loom. The price of the raw materials required is Rs. 41,029, or Rs. 72 per loom, and the production is worth Rs. 87,011 or about Rs. 146 per loom. Deducting the value of the raw material required and the interest on the capital invested in the plant, Rs. 46,660 represent the total wages and profits, i.e., Rs. 78.2 per loom or about Rs. 40 per head; as a loom generally takes two persons to work it. Thus a man and his wife earn between them only Rs. 6.5 a month, which is less than the wages of a common labourer.

\*Number of looms, hands engaged, capital invested and total production.

It should be noted here that it is not the Dhangars but only the Sangars who earn this much, their great difficulty being to procure wool. They have to spend nearly a week or so out of every month, travelling several miles from one place to another and collecting the requisite quantity of wool piece-meal. The sheep being shorn twice in a year, Dhangars are too poor to buy it in quantity sufficient to last even for six months. Their better credit, however than that of cotton weavers stands them in good stead to procure loans on easier terms, though they seldom borrow more than Rs. 10. Many of the Dhangars therefore cultivate land during half the year and those who have none, work as field labourers during the agricultural season.

Pattankodoli in the Alte Peta where a large fair is held every Ashwin in honour of a god worshipped by the Dhangars is the greatest centre of this trade in the whole territory, having many Dhangars who weave cumblees and also attracting Dhangars and cumblees from a distance of 50 or 60 miles. Chinchali, Washi and Harali are other places of cumblee trade in the territory.

20. The cumblee is an indispensable article to all farmers, labourers, Consumption, supply and other lower classes males as well as females. and export. Though English blankets are freely used, the cumblees form the chief bedding of all the lower classes and the chief protection against rain and cold in winter and autumn.

Deducting the number of children (1,23,292) below 10 years of age from 913,131 the total population of the State, and assuming only 40 per cent. of the remainder 789,839, as using the article, and calculating at the rate of one cumblee per head every second year, the number of cumblees required every year comes to 150,000 valued at Rs. 2,25,000 at the rate of Re. 1-8 per cumblee.

Thus it is evident that the total production of the article, which is only Rs. 87,011 worth, is not quite equal to its consumption, and the statement therefore that it is exported to some extent to Kofikan and other contiguous foreign territory, and little of it is imported, stands in need of confirmation. From my own inquiries, Sangar cumblees would appear to be exported from Kolhapur, Wadgaum, Kapshi, Malkapur and Male and only some Dhangar cumblees from Chinchali, Rayabag, Mutnal and Harali. Likewise a large number of them is imported to the fairs at Pattan-Kodoli and Chinchali. However this be, there is no question that the local production of the article does not meet the local demand for it, and there is therefore much scope for an increase in its production, which will find employment for a large number of hands, who are at present eking out a miserable existence. The plant and machinery required for this industry is not costly, nor is the requisite skill of a high order. The capital necessary for raw material is also insignificant, while the latter can be much increased

by allowing greater facilities for sheep breeding in the shape of allowing larger pasture grounds which are at present unprofitably handed over to the forest department in the Peta of Shirol, Alte and Gadinglaja. An increase in the number of sheep will not only supply more wool for the industry, but also cheaper food for the flesh eating population, and a highly-prized manure for agricultural purposes, and a large supply of skins to tanners to boot.

Though there is every reason for this industry to thrive, it has, if anything, declined during the last decade as shown from the following statement, the figures for 1883 being quoted from the *Gazetteer*:—

| No. | Name of the division. | No. of looms<br>in 1883. | No. of looms<br>in 1893. |
|-----|-----------------------|--------------------------|--------------------------|
| 1   | Karwir ... ..         | 99                       | 98                       |
| 2   | Panhala ... ..        | 33                       | 47                       |
| 3   | Alta... ..            | 100                      | 74                       |
| 4   | Shirol ... ..         | 155                      | 123                      |
| 5   | Gadinglaja ... ..     | 151                      | 142                      |
| 6   | Bhudargad ... ..      | 33                       | 36                       |
| 7   | Vishalgad ... ..      | 23                       | 27                       |
| 8   | Bawada ... ..         | 13                       | 12                       |
| 9   | Kagal ... ..          | 38                       | 29                       |
| 10  | Ichalkaranji... ..    | 13                       | 5                        |
|     | Total... ..           | 658                      | 596                      |

Thus the western portion of the territory only shows a slight increase while it ought to be better in the eastern, as it is there alone that sheep can live during the monsoons protected from excessive rain and high winds and also the ravages of wild beasts which abound in the former. Most of the cumblee-weavers complained of want of pasture grounds in the eastern part, as is borne out by the figures, not falsely.

In Major Graham's Statistical report, published in 1856, the value of the total production of cumblees in a year is given as Rs. 1,00,000. This was nearly 13 per cent. in excess of the present production, when the population was 42 per cent. less and the consumption proportionately smaller. That the industry has lately declined is therefore evident, and is to be attributed to the smaller quantity of wool available.

The Dhangars of Rayabag and Chinchali weave cumblees of thick cotton thread which resemble canvas and can be used for a variety of purposes:

Alte, Shirol, Gadinglaja and Karwir are the places where there are many pasture grounds and there is much scope for the increase of sheep. The owners of sheep who furnish wool as well as yarn are generally prepared to live in villages where there are large pasture grounds and the weavers of cumblees are not necessarily confined to large towns like the weavers of cotton cloth. The Dhangars especially are invariably scattered over many small villages.

21. As cumblee-weaving is an industry which depends entirely on the supply of wool, reliable statistics of the import and export of wool will have to be collected before any definite proposals can be made for improving the industry.

Sheep Breeding and Pasturage.

Twenty-seven maunds were imported at Rayabag and 174 at Kolhapur by Railway in 1893, but the great portion of wool required for the local cumblee-weavers would appear to be supplied by the local shepherds. Some of the cumblee-weavers in the Gadinglaj Peta, however, buy it at the Nipani and Sankeshwar markets, and it is also brought for sale at the weekly markets of Sarud and Wadgaum from the adjacent British districts. The Rayabag Dhangars also buy it at Bagewadi and some other places in its vicinity in the Belgaum Collectorate. No wool was exported by rail last year, and the export by road, if any, cannot be very large. Because want of sufficiency for local requirements is generally complained of in the territory both by Sangars and Dhangars, especially the latter. This is chiefly owing to sheep being subject to many diseases, and their inability to withstand the effects of excessive rain. The excessive rain of 1892, for instance, so reduced their number that wool and its yarn have not yet subsided to the low level of prices which then prevailed. The shepherds themselves attribute the small supply of wool to the reduction in the number of sheep and goats mainly owing to want of pasture grounds. They allege that some pasture grounds in the Alte and Shirol Petas have been taken for forest purposes, but not a single tree or plant has been grown there since, and the only return they make is the paltry sum realised by the auction sales of grass which is hardly sufficient to defray the expenses of the establishment maintained for the purpose. While the extent of old pasture lands put up to auction by the Revenue Department is increasing, their poverty prevents the Dhangars from competing with higher bidders or leasing them from the purchasers at three or four times their assessed value. They have consequently begun to reduce the number of their sheep and goats, and thus while the State seldom realises the full value of the lands by such sales or even as much as the Dhangars are prepared to pay if the lands are leased to them for a period of 10 or 15 years, the occupation of the latter is severely suffering, though they do not grudge paying the State more than the average sum realised during the past 10 years. They likewise allege that the extent of Gayarans once reserved for the cattle and sheep of the village is being gradually curtailed, and the areas set free for grazing where forest settlement has been made are ridiculously

ll. Inasmuch as goats and sheep supply wool, mutton, and skins, and an

important manure and also maintain so many shepherds, they do constitute a portion of the wealth of the country. Their breeding and rearing therefore deserve the serious consideration of the authorities.

22. When the supply of wool has received proper attention, the next thing necessary to do, is to improve the existing looms for cumblee-weaving. The mere substitution of cotton weavers' looms will effect a considerable improvement in the product; e. g., the cumblees of Bellary and the Carnatic owe their superiority to being woven on looms resembling those of cotton weavers. The introduction of carding and spinning machines will likewise facilitate both operations, and what small capital the weavers require might be advanced by the State on proper security. A small cumblee mill with a hundred or two spindles and 50 or 60 looms like the one at Bangalore might be started with great advantage at Kolhapur or Shirol. The total outlay will not exceed from forty to fifty thousand rupees and will find employment for two hundred Sangars and Dhangars. There need be no apprehension about the product finding a ready market, as there is an extensive demand for Dhangar-made cumblees, which are largely turned out in the Shirol and Gandinglaja Petas; and the State might patronize the mill by indenting upon it for the cumblees required for the Khasgi, the Lashkarphad, and the Rissalla.

*Statement giving information about the Cumblee Industry.*

| Number. | Name of the Division. | No. of looms. | Capital invested in erection. | Working capital. | Value of the articles turned out. | Hands engaged. |
|---------|-----------------------|---------------|-------------------------------|------------------|-----------------------------------|----------------|
| 1       | Karwir ... ..         | 98            | 1,893                         | 9,180            | 16,625                            | 215            |
| 2       | Panhala ... ..        | 47            | 515                           | 7,750            | 9,995                             | 110            |
| 3       | Alte ... ..           | 74            | 509                           | 1,090            | 10,382                            | 180            |
| 4       | Shirol ... ..         | 126           | 973                           | 4,449            | 9,137                             | 338            |
| 5       | Gandinglaj ... ..     | 142           | 1,101                         | 11,705           | 28,122                            | 318            |
| 6       | Bhudargad ... ..      | 36            | 242                           | 4,780            | 6,225                             | 57             |
| 7       | Vishalgad ... ..      | 27            | 58                            | 660              | 1,150                             | 85             |
| 8       | Bawda ... ..          | 12            | ...                           | ...              | ...                               | 12             |
| 9       | Kagal ... ..          | 29            | 257                           | 1,200            | 4,825                             | 68             |
| 10      | Ichalkaranji ... ..   | 5             | 105                           | 215              | 550                               | 10             |
|         | Total...              | 596           | 5,653                         | 41,029           | 87,011                            | 1,343          |

## CHAPTER IV.

## OTHER IMPORTANT INDUSTRIES.

## SUGAR REFINING.

This is one of the most important industries in the province, chiefly confined to the Alte and Karwir Petas. Last year sugar was refined at 10 places: 4 in the Alte Peta, 2 in the Shirol Peta, 3 in the Karwir Peta and one in the Kagal State. About 22,000 cans of sugar-cane juice, each containing 120 gallons, were purchased by 49 sugar refiners at Rs. 7 to 8 per can, thus investing a capital of about Rs. 1,65,000; and sugar worth Rs. 1,60,000 and Kakawi, the bye-product left after crystallization of sugar, worth about Rs. 25,000 at Rs. 7 per maund, were produced, employing about 800 hands for about 4 months after the sugar-cane harvest, during which the industry is carried on.

The average expense per can is annas 8, and the interest, which the sugar-makers have to pay on the capital, which they invariably borrow, is from Rs. 18 to 24 per cent. per annum. Taking the wages of labourers employed at Rs. 11,000 and Rs. 9,900 as interest for four months at 18 per cent. on Rs. 1,65,000, the total outlay amounts to Rs. 1,85,900 resulting in a loss of Rs. 900. The loss this year was heavier still, the price of sugar having suddenly fallen from Rs. 2-8 to Rs. 2-4 and Rs. 2 per maund, while there was no rise in that of molasses.

Sulkud and Rendal are the two largest centres of sugar-refining industry in the territory. Next come Yelgud, Shirol, Sangral and Lingur and the rest are unimportant. It is said that the industry has been on the decline in all these places and the production at present is not half of what it used to be before 1880, when the privilege of manufacturing and selling liquor was granted to one person. The losses incurred in the first three or four years were heavy, as the liquor farmer of the State had also the farms of the Belgaum and Satara collectorates, and consequently he demanded his own price for the bye-product. So long as liquor used to be distilled at almost every village, molasses were sold at from Rs. 25 to 30 per khandi, and the liquor itself at Rs. 1-8 per gallon; while liquor is now sold at Rs. 5 per gallon, molasses or the raw material from which it is manufactured does not fetch even a third of its former price. The system of liquor farms has thus proved ruinous to the liquor consumers as well as to the sugar-makers though in the beginning it gave an impetus to the sugar industry by creating a demand for large quantities of molasses, which could be disposed of at once, though at low rates, instead of long remaining on hand as before and suffering loss by evaporation. Latterly the import of beet sugar and other varieties of inferior sugar from abroad has tended to lower the price of the locally manufactured article.

Kolhapur sugar used to sell once at from Rs. 3 to Rs. 4 per maund when the best Mauritius sugar, the like of which is now very rarely to be seen, was sold at more than Rs. 5 per maund. The price of the local product has now gone down to Rs. 2 or Rs. 2-8 and imported sugar is now sold at Rs. 3½ to Rs. 4. Besides the rise in the price of raw sugar or *gul* has also affected this industry, because it is only when the price of raw sugar falls considerably, that it is found profitable to refine sugar. The conversion of juice into raw sugar or *gul* is less expensive than conversion into sugar, as the latter requires more labour. The price of sugar is solely regulated by the imports from abroad, and that of *gul* by the local demand and supply, a rise in the price of *gul* making sugar-refining less profitable.

Many persons therefore who used to carry on this trade at Sawagum, Hupri, Kolhapur and Kagal have now given it up and many more will follow suit, unless its prospects improve, which it would be worth while attempting, as it is an important industry indigenous to the province engaging a large number of hands, and a respectable amount of capital, and commanding a large export trade for its product, and supplying the raw and chief material for the distillation of liquor.

The statistics given in the annual reports of the State about the export of the local manufactures do not appear to be reliable. Take, for instance, the figures quoted in the report for 1892-93. Sugar worth Rs. 24,900 only is said to have been manufactured, and Rs. 15,400 worth of it exported. That this is not true is evident from the following table. The information given therein was collected on the spot from the very sugar-refiners, who said that they sold to the Sangli and Nipani merchants their sugar worth from Rs. 50,000 to Rs. 70,000:—

| Number. | Name of the division. | No. of places. | No. of refineries. | No. of sugarcane juice cans purchased for sugar-making. | Capital invested at Rs. 7½ per can. | Value of sugar turned out. | Value of Kakawi. | Hands engaged. |
|---------|-----------------------|----------------|--------------------|---|-------------------------------------|----------------------------|------------------|----------------|
|         |                       |                |                    |   |                                     | Rs.                        |                  |                |
| 1       | Karwir ... ..         | 3              | 8                  | 5,500   | 41,250                              | 40,000                     | 6,250            | 215            |
| 2       | Alte ... ..           | 4              | 37                 | 16,000  | 1,20,000                            | 1,16,250                   | 18,200           | 610            |
| 3       | Shirol ... ..         | 2              | 2                  | 400   | 3,000                               | 3,000                      | 450              | 14             |
| 4       | Kagal ... ..          | 1              | 2                  | 100   | 750                                 | 750                        | 100              | 5              |
|         | Total .....           | 10             | 49                 | 22,000  | 1,65,000                            | 1,60,000                   | 25,000           | 844            |

2. The history of the Indian sugar industry and the Indian sugar History of Indian trade is very instructive. Soon after the establishment of the Company's rule in Bengal it was the only

exporter of the best crystallized sugar from India to England, where it fetched a higher price than the article imported into Great Britain from the West Indies and other Colonies which was of the most inferior quality and sold at 9s. per lb. In the year 1799 the British Government having imposed a heavy import duty on Indian sugar, in order to encourage sugar-refining in the West Indies and other Colonies, the cheaper rate at which sugar could then be produced in India encouraged speculators to ship Bengal sugar to America and even to the West Indies to be thence consigned to the markets of England and Europe at a lower import duty. But for this repressive duty, Bengal would probably have taken a very high place in the World's production and supply of cane sugar. On account of the high prices which then ruled, sugar refineries were established in England and Scotland for manufacturing sugar from Gul and a large export trade sprang up in that article to the detriment of the export trade in refined sugar. At this juncture another and stronger enemy to Indian cane sugar sprang up in the shape of the beet sugar. A professor in Berlin discovered the existence of sugar in beet root in 1747, but the discovery was not utilized till 1800, and by 1840 beet sugar industry had grown to be a national enterprise in Germany and France. This discovery brought ruin into the furthest corners of sugarcane-producing countries, and India felt its effects more fully than others. The commencement of sugar refining at Yelgud in the Kolhapur territory would appear to be synchronous with the spread of the discovery in Germany. New methods and appliances were discovered in the Colonies for manufacturing from cane juice, sugar which could compete with the cheaper article obtained from beet root; but India having stuck to its primitive methods and appliances, its export trade was killed, and import of fine sugar gradually increased from Rs. 55,58,010 worth in 1873-74 to Rs. 2,62,56,828 worth in 1892-93. The export of raw sugar or Gul declined likewise from Rs. 11,79,72,000 worth in 1883-84 to Rs. 83,59,950 in 1892-93.

Mauritius was once the only exporter of sugar to India. It is now imported as well from Germany, the United Kingdom, China, the Straits Settlements and Austria, the European countries being the chief suppliers of beet sugar.

It is not to be supposed that Government stood looking on unconcernedly at this ruin of an important industry. Strenuous efforts were made by the East India Company to sustain and revive it by encouraging planters from Jamaica, the West Indies, and England to come over to India and start large plantations and manufacture sugar with improved methods. Concessions were made to them not only in the shape of rent free lands, a stipulation to purchase all the product at a fixed rate, and permission to distil and sell rum, but they were even given large loans for buying machinery and for erecting buildings. The Agri-Horticultural Society of India



took a leading part in these efforts, which were continued from 1836 to 1860, to end in regrettable failure, the causes of which were as follows:—

(1) For refining operations to be conducted on a large scale, sugarcane plantations extending over hundreds of acres in one place are necessary, whereas the cultivation of sugarcane in India is confined to small farms or holdings scattered over irrigated tracts and is limited by the supply of water and manure.

(2) The juice requires to be expressed and boiled as soon as possible after the canes are cut, the carriage of the canes over long distances, in a climate like that of India, being detrimental to the juice for purposes of sugar-making.

(3) A further obstacle to sugar-refining in India exists in the high differential rate, which the conditions of the excise system require to be placed on spirits made on the European method. The sugar-refiner in India is thus placed at a disadvantage in respect to the utilization of the molasses in the form of spirits.

So recently as 1889 Messrs. Travers and Sons of England addressed a communication to the Secretary of State for India, recommending the establishment of Central sugar factories under the patronage of Government in the sugarcane districts, for carrying on vacuum pan sugar-making on a large scale. The proposal was on consideration declared by all the local Governments to be impracticable.

Several attempts, likewise made between 1830 and 1861 at Bassein, in the Thana District, to plant sugarcane and to manufacture sugar on modern and improved methods with liberal pecuniary help from Government, failed, I believe, for the reasons stated above. Mr. Adarji Ghaswalla's Factory at Poona, with all its complete plant, machinery, and buildings, capable of turning out two tons of sugar per day, failed to pay, for the simple reason that the rum made from the refuse or non-crystallizable residue could not be disposed of to the best advantage.

Another sugar factory established at Gandevi in the Baroda State, under the patronage of H. H. the Gaikwad; though situated in the heart of a sugarcane-growing tract, the area of which within a radius of 5 miles from the factory is estimated at about 1,200 acres; had to be given up, after working for two years at a considerable loss, for no other reasons than that the supply of sugarcane lasted only for three months, and that jaggery had to be bought at a prohibitive price to keep the factory going for the remaining 9 months, and there was no profitable way of disposing of the molasses.

According to the Statistical Tables of British India there are

proximate capital of Rs. 28,26,000 and an outturn valued at Rs. 54,60,677. There may be many more small refineries like those of Kolhapur conducted by cultivators or other local agencies, the number of which cannot be ascertained without a regular Industrial Survey of the whole country. Of the fourteen large factories mentioned above, 7 are in Bengal, 5 in Madras and 2 in the North-Western Provinces. Many of the Bengal refineries work largely in palm sugar, while those in Behar are exclusively confined to cane sugar. The most important of the Bengal refineries is the Cossipur Factory with a capital of Rs. 10,00,000. In the North-Western Provinces the industry is mostly in the hands of the cultivators. There is one large factory known as the Rosa Hills at Shajahanpur with a capital of Rs. 16,00,000 and an outturn valued at Rs. 19,06,557, giving employment to 1,015 hands. In Madras the Aska Factory in Gaujam employs 496 hands permanently and 746 temporarily. The two factories owned by Messrs. Parry & Co. in South Arcot, employ 729 hands. In the Punjab there is one small sugar factory at Gurdaspur employing only 214 hands. But this is also a Rum Distillery. Mysore is said to have one small factory turning out sugar worth Rs. 84,000.

Most of the large sugar works at present existing in India must not be considered to be thriving on sugar-refining, pure and simple. But for their large contracts for the supply of rum, they would soon share the fate of smaller concerns not owning rum distilleries; otherwise institutions like the sugar works at Cossipur, Rosa, and Aska working on scientific principles and on the latest improved methods, would have multiplied in the country. The vacuum pan system considerably reduces the quantity of the non-crystallizable bye-product, but it is found impracticable in India on account of the small plantations. In a word, scientific cane sugar refining in India on a large scale has not a very hopeful prospect.

3. The Kolhapur territory is a great sugar-cane growing tract, and sugar-cane cultivation has increased in the territory by 50 per cent. during the last three decades, as has also the export of gul. The total outturn of the latter at the rate of Rs. 225 per acre is about more than 35 lacs of rupees, of which more than 75 per cent. is exported. Cane juice worth about Rs. 1,65,000 is converted into sugar of an inferior quality. The total produce of sugar last year was worth about the same sum, viz., Rs. 1,75,000 and besides molasses or Kakawi worth about Rs. 25,000 or 30,000 was sold for liquor-making. Thus as it is, the sugar industry of the territory is of a respectable magnitude, while that of gul is greater still. The improvement and development of the cultivation of sugar-cane, by introducing better seed, by making more liberal Taccavi advances to the cultivators for digging new wells, and by undertaking some irrigation projects is well worth attention. Though in the face of the failures mentioned above, it would be question-

Possible improvements  
that can be introduced.

able for the State to undertake the establishment of a large sugar factory on the improved English or Mauritius system, it might profitably encourage private capitalists by affording them all the facilities in its power for the success of the enterprise.

As sugar is made and refined here, as in the Rosa factory, from the raw made in the field from the juice purchased, the improved process of straining and filtering as followed at Rosa might well supplant the crude method at present in vogue in the territory and a vacuum pan and a small centrifugal machine capable of being worked by hand power may take the place of the tedious and slow process of crystallization now adopted. The apparatus might be first introduced in the model farm attached to the local High School, and in course of time as its advantages come to be known, the sugar-refiner will take to it kindly, as is the case now with iron sugarcane mills, the credit of introducing which belongs to the late Regent. Vernacular tracts describing in detail the various Indian and English processes of sugar-refining followed in other places, might be distributed broadcast among the sugar-makers in the territory. Advances might likewise be made to sugar-refiners for three or four months of the refining season on the same terms as Taccavi.

The importation of Mowra flowers for distilling liquor having been found on trial to be far from profitable, the contractors largely use the by-product Kakawi for the purpose, and so long as the same individual continues to have the liquor farm for two or three zillas, the refiners are quite at his mercy about the price of this bye-product, as was actually the case in 1881-82, when he dictated his own terms and brought down the price from Rs. 25 to Rs. 6 per khandi. Monopolies are bad in themselves, but they are worse still when they extend over a large area. In the interests of the sugar industry, therefore, the British Government will consider the propriety of placing in the hands of one man the monopoly of manufacturing and selling liquor in several collectorates, or at any rate of fixing the minimum price of Kakawi.

#### OIL PRESSING.

4. I have heard it often said that the import of kerosine oil has not much affected this industry which is still extensively carried on, and that the condition of oilmen is not hopeless or miserable. I wish that the result of my inquiries had confirmed this impression. The condition of oilmen, before the introduction of kerosine oil, was decidedly better, and though even at present many of them especially in large towns, where oil commands a large sale and a large export trade, are in a better condition and earn higher wages than those engaged in the last two or three industries, the majority of oilmen and especially those in small places have suffered considerably and the condition of many of them is well nigh hopeless.

The majority of well-to-do men in large towns and almost all the lower classes use kerosine-oil for lighting, and its import is increasing day by day. Our oilmen therefore have mainly to depend on the export of oil to Bombay and other places for machinery and on the sale of the oil cake which is still in request for cattle. Latterly oil-seed has also begun to be carried out of the country in very large quantities; while this foreign demand for the seed has given a great impetus to the cultivation of ground-nut, and raised its price 30 to 40 per cent., the price of the oil itself has gone down in competition with kerosine. The export trade in the seed has made it very difficult for the oilmen to procure a supply of it unless he lays in a sufficient stock at harvest time, which his means do not always permit. Some oil mills or ghanees work only for 3 and some for 6 months in the year, and in small places for not more than 3 or 4. Many, therefore have given up the trade and taken to selling kerosine. Others have turned itinerant peddlers of cocconut-oil which they bring up from below the Ghauts, and the rest have taken to agriculture or work as field labourers. This state of things will go from bad to worse unless oil, instead of ground-nuts, commands the foreign export trade.

The total number of oil mills or ghanees at present working in the territory is only 912, and the number of persons employed in them is 1,871. The cost of the machinery is Rs. 44,999 or Rs. 49·3 per mill. The value of the oil pressed out is Rs. 5,31,384 or Rs. 532·6 per mill. The cost of the raw material required is Rs. 3,62,415 or Rs. 397·33 per mill. Deducting this with interest at 12 per cent. from the produce per mill, there is left a sum of Rs. 137·6 as the net gains per annum per mill or Rs. 68·8 per head, as the average number of hands employed on each mill is 2. Deducting the feed of the bullock required for drawing the mill, which cannot be less than Rs. 50 per annum, the gains per mill per annum is only Rs. 87·6.

The decrease in the demand for common country oil is antagonistic to the development of this industry even by the use of English machinery. The demand however for castor and linseed oils, which cannot be extracted by the existing clumsy mills, could make the introduction of small hand-presses for the purpose worthy of trial.

The total value of the oil pressed in 1856 is stated in Major Graham's report to have been Rs. 1,30,000. The present out-turn is much in excess of this and the last decade also shows a slight increase. In the Gazetteer published in 1885, about 500 families or more than 1,500 people

are shown as employed in this industry. The present distribution of this industry over the territory is tabulated below:—

| No. | Name of the division. | Population. | No. of places where this industry is carried on. | No. of oil-mills. | Capital invested in erection. | Working capital. | Value of the articles turned out in a year. | Hands engaged. |
|-----|-----------------------|-------------|--|-------------------|-------------------------------|------------------|---|----------------|
| 1   | Karwir ... ..         | 1,51,597    | 33   | 231               | 8,058                         | 1,22,500         | 1,60,150                                    | 486            |
| 2   | Panhala ... ..        | 1,16,967    | 24   | 98                | 3,775                         | 35,926           | 50,062                                      | 212            |
| 3   | Alte... ..            | 1,08,883    | 26   | 123               | 8,680                         | 69,000           | 1,07,601                                    | 240            |
| 4   | Shirol ... ..         | 1,05,665    | 30   | 62                | 3,570                         | 21,679           | 34,930                                      | 161            |
| 5   | Gadinglaja ... ..     | 1,41,075    | 26   | 135               | 8,271                         | 38,110           | 60,595                                      | 262            |
| 6   | Bhudargad ... ..      | 90,290      | 18   | 59                | 3,070                         | 26,635           | 35,480                                      | 112            |
| 7   | Vishalgad ... ..      | 31,247      | 4  | 31                | 1,350                         | 8,600            | 13,800                                      | 101            |
| 8   | Bawda ... ..          | 43,770      | 21   | 57                | 2,850                         | 1,300            | 1,916                                       | 70             |
| 9   | Kagal ... ..          | 53,272      | 11   | 54                | 2,350                         | 15,800           | 32,230                                      | 104            |
| 10  | Ichalkaraji... ..     | 66,365      | 5  | 62                | 3,025                         | 22,865           | 34,620                                      | 123            |
|     | Total..               | 9,13,131    | 198  | 912               | 44,999                        | 3,62,415         | 5,31,384                                    | 1,871          |

It will thus be seen that the industry has localised itself according to population and the seed producing tracts. It is carried on at 198 places in the territory of which Kolhapur with 139 mills and Wadgaum with 50 mills are the only two places with 50 or more mills. Four others, namely, Kodoli, Kalhe, Gadinglaja and Shirol have more than 20 of them, Kagal, Shenagaum and Halkarni more than 15, and the rest less than this number.

The imports of kerosine-oil and the exports of country oil are not exactly known. In the town of Kolhapur no less than 8,256 boxes were imported last year, of the value of Rs. 80,960 at Rs. 3-12 per box.

Country oil is said to be exported to Bombay and other sea-coast towns. An oilmill worked by steam power is about to be opened in the town of Kolhapur, which will practically show how it affects the hand industry in the territory. But as oil-cake produced in steam mills is inferior from there being little oil left in it, the country mills are not likely to suffer much by its competition as long as there is demand for their oil-cake.

According to the annual report for the year 1893-94, 2,30,135 maunds

This quantity if reduced to oil will yield about 80,000 maunds of oil worth Rs. 2,40,000, and the same weight of bil-cake valued at Rs. 40,000.

The total area under the cultivation of ground-nut in the territory is 60,097 acres.

As stated before, the cultivation of oil seeds is increasing day by day. The four principal oil seeds grown in the territory are castor seed, korta, karda and ground-nut. The acreage under these crops at present as compared with that in 1881-82 is as follows :—

|                      | 1881-82, | 1893-94. |
|----------------------|----------|----------|
| Castor seed.....     | 1,936    | 3,208    |
| Korta .....          | 9,442    | 18,344   |
| Ground-nut .....     | 27,543   | 60,097   |
| Safflower seed ..... | 5,223    | 8,795    |
| Til .....            | 927      | .....    |
| Jawas .....          | 505      | .....    |
| Ambadi .....         | 482      | .....    |

The acreage under the first four has nearly doubled itself in the course of the last 13 years. In the year 1892-93, oils worth Rs. 59,29,066 were exported from India while the export of oil seeds of all kinds was worth Rs. 1,163,10,150, *i.e.*, nearly 20 times as much to foreign countries; of these, the castor seed was worth Rs. 56,64,448, linseed, Rs. 552,62,968, ground-nut 106,80,342 and til 209,23,164. Though these figures are far from encouraging an attempt for a diversion in favour of oil, still considering that all the seed is exported for oil, that the carriage of oil itself will be less than that of the seed, and that the extraction of oil by machinery will be cheaper than now, there is no reason why the projected oil mill should not succeed. In the interest of the local industry at least the project deserves every encouragement from the State.

#### POTTERY.

5. Next in importance to oil-pressing comes pottery. The total number of potters' kilns in the territory is 1,055 and 3,312 hands work in them. Their simple machinery is valued at Rs. 3,805 or 3.64 per kiln, and the working capital, *i.e.*, the price of the raw material and fuel at Rs. 21,775 or 20.8 per kiln. The articles annually turned out are worth Rs. 1,15,178 or 170.2 per kiln. Deducting from this the price of the raw materials, there is left a sum of Rs. 93,403 to be divided among 3,312 hands as wages. This gives an average per head of less than Rs. 25.18 per annum or less than two annas per day. So what is gained in cheapness of the machinery and material is lost in the labour required which is enormous. This industry is carried on at no less than 261 different places. The Karwir Peta has got the largest number of kilns, *viz.*, 247, distributed over 88 places. There are only three places in this Peta having more than 10

kilns: Kolhapur has 115, Kudutre 25 and Beed 10. The pots, tiles, &c., prepared in this Peta are very inferior for want of suitable earth which is not to be found in it. Next comes Gadinglaj with 178 kilns distributed over 48 places. There are only four places having more than 10 kilns: Kapshi, belonging to the Senapati, has got the largest number, *viz.*, 50, and the pots and tiles made there are also better than those of Kolhapur. Harali, Bhadgaum and Hanimnal have 17, 15 and 12, respectively. As the earth is better here, the ware turned out is of a superior quality, especially the tiles. Gadinglaj made a respectable show of pottery in the late exhibition and carried away the first prize. Next to Gadinglaj is Panhala with 174 kilns distributed over 49 places. There are however only three places having 10 kilns each. Panhala also made a respectable show of pottery including an imitation of Mangalore tiles which was commended. It owes the large number of its kilns to the good earth found in the Peta, though the pots and tiles did not come up to those of Gadinglaja in fineness, polish, and strength. Next to Panhala comes Alte with 118 kilns at 35 places. Wadgaum is the only place in this Peta which has a large number of kilns. Though there are potters in most of the villages in this Peta, yet for want of good earth and cheap fuel it may never expect to beat Panhala and Gadinglaj in this respect.

Next to Alte is Shirol with 107 kilns, of which 37 belong to Rayabag, 20 to Chinchali, and 11 to Shirol. Last comes the Bhudargad Peta with only 58 kilns at 12 places only. Of these, 23 are at Shenagaum alone. The superiority and strength of the earthen articles made here is remarkable, and they are the best in the whole territory. They use a mixture of two or three kinds of earth which gives the pots their strength. As Panhala, Bhudargad, and Gadinglaj possess suitable earths, it is in these three divisions that pottery can be improved with advantage. The Gadinglaja tiles especially from Basapur and Hagidhal near the Pachhapur Station, if introduced at Kolhapur will soon take the place of the small, improperly baked and exceedingly porous article manufactured from silt that collects on the banks of the rivers during the monsoons. Bhudargad is richer than Panhala in earths suitable for pottery as regards both quality and quantity. A clay found at Salpyachiwadi near Gargoti resembles kaolin or China clay, and deserves to be submitted to an expert for examination and trial.

Kagal has got 85 kilns at 26 places. There are only two places having 10 or more kilns, *viz.*, Kagal 18 and Rui 10; and the articles turned out are poor. Ichalkaraji has 22 kilns. There is no information to hand for Bawda, Vishalgad and the Ajare Taluka of the Ichalkaraji State.

The Geological Survey has brought to light the existence of a very large number of earths in various parts of the territory, especially in the Panhala, Bhudargad, and Gadinglaj Petas, and the opinion of an expert

usefulness of these earths for pottery will be very valuable. The potters are either too ignorant or too conservative to introduce any improvements in the preparation of the earth, the form of their articles, and the process of baking. Glazing has been tried at Panhala and Gadinglaja, and the employment of a trained man to teach pottery and glazing in the J. G. Technical School will be a profitable diversion of the energy and money now wasted in keeping up a large carpentry class, when there are hundreds of carpenters starving for want of work.

Though any certain figures are not forthcoming, the industry does not appear to command any export trade, nor are its products much imported.

The Gadinglaja and Shengaum earths might be tried for brick-making. It is just likely that they may turn out bricks superior to those made in Kolhapur in point of durability. If they prove to be really so, a brick factory might be started, and first class bricks made and exported to Belgaum and other places. From the Shengaum and other Bhudargad earths much superior pottery can be made and glazed under the supervision of a good trained potter. It will be worth while to engage one for the Technical School either from Calcutta, Jeypore or Bombay.

| No. | Name of the Division. | No. of places where this industry is carried on. | No. of potters' kilns. | Capital invested in erection. | Working capital. | Value of the articles turned out in a year. | Hands engaged. |
|-----|-----------------------|--|------------------------|-------------------------------|------------------|---|----------------|
| 1   | Karwir ... ..         | 38   | 247                    | 803                           | 11,791           | 26,471                                      | 735            |
| 2   | Panhala... ..         | 49   | 174                    | 321                           | 3,084            | 31,139                                      | 516            |
| 3   | Alte ... ..           | 35   | 118                    | 407                           | 93               | 9,235                                       | 365            |
| 4   | Shipol ... ..         | 34   | 107                    | 664                           | 1,415            | 9,873                                       | 313            |
| 5   | Gadinglaja ... ..     | 48   | 178                    | 845                           | 2,519            | 18,995                                      | 609            |
| 6   | Bhudargad ... ..      | 12   | 58                     | 230                           | 544              | 3,320                                       | 173            |
| 7   | Vishalgad ... ..      | 4  | 17                     | 33                            | 430              | 1,045                                       | 33             |
| 8   | Bawda ... ..          | 4  | 24                     | ...                           | .....            | 326   | 109            |
| 9   | Kagal ... ..          | 26   | 85                     | 225                           | 1,262            | 8,294                                       | 276            |
| 10  | Iobalkaruji ... ..    | 11   | 37                     | 277                           | 637              | 6,480                                       | 183            |
|     | Total...              | 261  | 1,045                  | 3,805                         | 21,775           | 1,15,178                                    | 3,312          |



### FIBRE-EXTRACTING, OR ROPE-MAKING.

6. This is carried on by a low-caste known as Náde Mángs, who extract fibre from aloe leaves and turn it into ropes, occasionally using Ambáda and Táq. Rope-making is extensively carried on in those portions of the province having irrigated lands, where there is a large demand for strong ropes required for *motas* used to draw water from deep wells. The total number of persons engaged in it is returned as 525. This requires verification, as several places which ought to have been shown in the returns appear to have been left out, probably because low-castes were concerned, and they were too ignorant to be able to give information on the subject.

Out of the 525 persons referred to above, only 262 are returned as making ropes of the value of Rs. 5,363 or about Rs. 20 per head. Deducting Rs. 2,106, the value of the raw material, the balance of Rs. 3,257 represents the wages of 252 hands or Rs. 12.4 per head. This is correct so far as it goes. The work is carried on only for about 3 or 4 months in the hot weather, as this is the only time of the year favourable for cutting the leaves and allowing them to rot. A family of two persons, a male and a female, makes ropes more than Rs. 25 or 30 worth in the year. Taking Rs. 15 worth as the average production of each person, 525 persons will produce ropes worth Rs. 7,875. Rope-making is extensive in the Karwir, Alte, Shirol and Panhala Petas, where cultivation by irrigation creates a large demand for ropes, and the aloe plant too grows abundantly. Alte takes the lead in the growth of aloe as well as in rope-making. Next comes Panhala and next to it Shirol and Rayabag. Gadinglaja comes last both in respect of irrigation and the growth of aloe.

It is not exactly known how much of the aloe fibre or ropes made from it are exported out of the territory. It is, however, certain that none are imported, the only imported rope-fibre and ropes being of coir. Aloe and other fibres if extracted in large quantities are likely to command a large export trade. As things are at present, a large quantity of aloe leaves lies unutilised, being over and above the requirements of the province. The crude and tedious process of extracting the fibre adds to the cost of the ropes, which therefore do not find for themselves a ready market outside the territory. An increased cultivation of the plant, which thrives in all climates, and cheaper and more expeditious methods of extracting fibre will not only remedy this, but enable the article to be taken up for making paper, both coarse and fine, and the manufacture of gunny cloth. This subject is treated at greater length further on under aloe cultivation.

### CHEUMURA, OR PARCHED RICE-MAKING.

7. Though confined to only nine places in the territory, this is one of its important industries and appears indigenous to it. Of these 9 places, 6 are in the Kolhapur State proper:—Nigawe and Shirse in the Karwir Peta, and

Walwe, Kumbharwadi, Shenagaum and Nishnap in the Bhandargad Peta. The remaining three are in the feudatory states of Kagal, Bawda and Ichalkarnji one in each (Yamage, Rashiwade and Ajare respectively). Nigawe, Walwe, and Yamage are the three great centres of this industry having respectively 30, 50 and 26 Bhatoes. Ajare and Shenagaum have two each. But they work only for a day or two immediately before the weekly market-day, and they do not turn out large quantities of the article. Shirse, Kumbharwadi and Rashiwade have 12, 9, and 7 respectively, working generally for nine or ten months in the year. The total number of Bhattées in the State is 139 engaging 359 hands, males and females. The total annual production of parched rice is Rs. 68,000 worth, of which more than half is exported. The price of the raw material required is Rs. 45,330, which, when deducted from the value of the total production, leaves a balance of Rs. 22,670 to be distributed among 359 hands. This gives Rs. 63·14 per annum per head, which is little when compared to the hard work required to be performed and at odd times of the day. As no mention is made of this industry either in Major Graham's report or in the late *Gazetteer*, there is nothing to show whether it has advanced or declined. But it cannot be the latter as it has not had to contend against much competition, and the few places mentioned above still maintain their old reputation. As the preparation does not keep long without spoiling, and cannot bear exportation either to long distances or at all seasons, the quantity turned out has to be limited by these considerations; but there is one thing that can and should be done to make this industry thriving, and that is to increase the cultivation of the particular species of rice that is best suited for it. The condition of the Panaries, as the people engaged in the trade are called, and it is confined to this class alone, is not much better than that of those engaged in other industries. Their health suffers in consequence of their having to work during the night and always near a fire. All are in debt and have to borrow money for buying unhusked rice for preparing Churmuras.

#### TANNING.

8. This industry is next in importance to pottery. It is carried on in about 134 pits at 29 places, and gives employment to 291 hands, males, and females. Hides and the materials for tanning them are pretty abundant in the province. The total value of leather prepared annually is Rs. 29,731. Deducting from this sum the cost of the hides and of the tanning and other materials required *viz.*, Rs. 14,960 with interest at 12 per cent., the wages of the 291 hands engaged amount to Rs. 12,777, giving an average of Rs. 44 per head or a little more than annas 2 per diem. This is rather too low, considering that it is only a particular class of the population that takes part in the industry. That neither requisite skill nor suitable material is wanting was seen at the late exhibition, where local tanners exhibited superior varieties of leather. In the absence of statistics it is not easy to say how much leather is imported into the territory; but the quantity of it, whether of

country or European manufacture, cannot be large as the tanners do not complain of having suffered by foreign competition, their chief wants being capital and a supply of hides at a reasonable price. Many of the tanners have to import cattle hides which the territory cannot supply.

The industry carried on in different divisions is distributed as follows:—

| No. | Name of the Division. | Number of places. | No. of Tanneries. | Capital invested in erection. | Working capital. | Value of the Article turned out in a year. | Hands engaged. |
|-----|-----------------------|-------------------|-------------------|-------------------------------|------------------|--|----------------|
|     |                       |                   |                   | Rs.                           | Rs.              | Rs.  |                |
| 1   | Karwir ... ..         | 3                 | 38                | 2,227                         | 7,815            | 12,460                                     | 73             |
| 2   | Panhala ... ..        | 2                 | 9                 | 7                             | 1,400            | 2,550                                      | 12             |
| 3   | Alte' ... ..          | 9                 | 35                | 400                           | 3,595            | 14,150                                     | 110            |
| 4   | Shirol ... ..         | 4                 | 15                | 84                            | 1,080            | 2,081                                      | 25             |
| 5   | Gadinglaja ... ..     | 7                 | 13                | 107                           | 640              | 1,950                                      | 23             |
| 6   | Kagal ... ..          | 3                 | 6                 | 60                            | 230              | 1,640                                      | 17             |
| 7   | Ichalkaranji ... ..   | 1                 | 22                | 22                            | 1,200            | 5,000                                      | 30             |
|     | Total .....           | 29                | 138               | 2,907                         | 15,960           | 39,831                                     | 293            |

In the Bhudargad and Panhala Petas and also in the Bawda and Wishalgad States bordering on the Sahyadri, there is no class of tanners as distinguished from the Chambhars, or workers in leather, who also tan their own hides. This explains the apparent disparity between the numbers of the two classes, considering the consumption of shoes of one sort or another, and the demand for leather for Pakhals and Motas, &c. While the Chambhars require annually leather of the value of Rs. 41,184, the value of that tanned in the territory does not exceed Rs. 29,731. These figures, however, require verification in order to fix the quantity of leather imported, which I found difficult to do during my tour on account of the ignorance of the tanners and want of arrangement for registering the road-borne trade.

The following figures give the exports and imports by rail for the last two years:—

| Year.       | Exports.             |        |                          |        | Imports.             |        |                          |        |
|-------------|----------------------|--------|--------------------------|--------|----------------------|--------|--------------------------|--------|
|             | Raw hides and skins. |        | Dressed hides and skins. |        | Raw hides and skins. |        | Dressed hides and skins. |        |
|             | Cattle.              | Sheep. | Cattle.                  | Sheep. | Cattle.              | Sheep. | Cattle.                  | Sheep. |
| 1892 ... .. | 864                  | 3,726  | 27                       | ...    | 729                  | 162    | 27                       | ...    |
| 1893 ... .. | 8                    | 2,711  | 13                       | 54     | 1,038                | 335    | 4                        | ...    |

Taken by themselves these figures show that the imports of raw hides have a tendency to rise and the exports to fall. The inward and outward trade in dressed hides is not considerable, but both will gradually improve as the result of the enterprize of a Bombay Mahomedan, who has lately started a large tannery in the town of Kolhapur. He has at any rate, been instrumental in stopping the exportation of hides of which the tanners and Chambhars complained.

The large excess of the imports of raw hides of cattle over goats' and sheeps' skins would point to the inference that the number of cattle in the territory is small and cattle breeding poor. Improvements therefore in the cattle and sheep breeding of the territory will considerably help this trade in addition to being useful for agriculture.

Though our tanners are generally well up in their craft, the leather turned out by the Bombay man above mentioned is much superior to theirs, chiefly owing to the rich materials he uses, and one or two new processes of which they are ignorant.

The materials generally used for tanning are the Hirda nuts and the Babul and Tarwad barks, and in places near the Ghauts the Ain bark which last is condemned by the Bombay man as giving a reddish-brown colour to the leather. The forest department of the State is doing all the needful for the cultivation of Hirda. Babul trees are being planted and reared in the Shirol Peta and Rayabag Mahal. A small plantation covering an acre or two might also be made at Balinge near Kolhapur and conducted on scientific principles.

Tarwad bark is the most valuable tanning material found in the territory, containing a larger percentage of tannin than Babul; with Hirda it makes superior leather of a rich buff colour, and is therefore exclusively used in the tanneries of the Madras Presidency. It was likewise highly commended at the colonial and Indian Exhibition in London. As it fetches a high price, both locally and abroad, an increased production of it will certainly pay. The plant abounds in the Basapur jungles of the Gadinglaj Peta and in some parts of the Katkol Mahal, where it grows spontaneously and thrives better in the sandy soil and dry climate, than in the Raybag Mahal, the Shirol Peta and the Pattankudi group of the Gadinglaja Peta where also it grows, but its growth is stunted. The present practice of selling the plants by auction and allowing them, young and old, to be cut down by the bidder, is very destructive, particularly in the absence of any arrangement for increasing their number by plantation. I think there is considerable land taken under forests in the Basapur group of the Gadinglaj Peta which will make excellent plantations of Tarwad. The culturable land at Shirur and Chikaldine, which I have suggested for coffee cultivation, might also be used for this purpose, if the coffee scheme is considered to be expensive. The Tarwad plant requires no watering or much looking after.

It is much to be pitied that my proposal recommending the plantation of Tarwad in the land specially reserved about the tank of Katkol as a gathering ground, and to prevent silt from getting into the tank, though approved by the State Executive Engineer, was misunderstood by the Mahalkari of Katkol. A plantation of Tarwad will not prevent the ground from being used as now by the cattle to rest on the way to, and back from, pasture, if their so doing is not objectionable on sanitary grounds. But if the cattle could get on without this ground before it was purchased for the purposes of the tank, it is difficult to see how inconvenience will be caused by their being deprived of it.

The inferior quality of land in the Rayabag Mahal and the Pattankudi group of villages in the Gadinglaja Peta where plenty of Mal land is available for the purpose, will require at the outset a little more care and expenditure necessary in rearing a Tarwad plantation there. The sticks, remaining after the bark has been stripped, will readily sell as fuel in the Rayabag Mahal where there is a scarcity of it.

Some other tanning materials less important than Babul and Tarwad bark found in the territory will be noticed under forest produce.

#### LEATHER WORKERS OR CHAMBHARS.

9. The places of business aggregate 1,257, and the number of persons employed in the industry 1,944. Their implements are returned as worth Rs. 4,212 or about Rs. 3½ per shop, and the working capital which means the price of the leather is Rs. 41,184 or Rs. 32·7 per house. The value of the total production being Rs. 1,02,341 or Rs. 52·6 per head, a margin of Rs. 61,157 remains after deducting the price of the raw material. This gives an average of Rs. 33 per head as wages, which is less than two annas per day. Many of the class work for the cultivators in exchange for a share of the produce. (They are distributed as follows, their number in the different portions of the territory being proportionate to the population :—

| No. | Name of the division. | Number of places. | Number of shops. | Capital invested in erection. | Working capital. | Value of the articles turned out in a year. | Hands engaged. |
|-----|-----------------------|-------------------|------------------|-------------------------------|------------------|---|----------------|
| 1   | Karwir ...            | 82                | 279              | 1,273                         | 14,170           | 28,635                                      | 538            |
| 2   | Panhala ...           | 91                | 174              | 191                           | 2,055            | 3,060                                       | 199            |
| 3   | Aite ...              | 40                | 177              | 641                           | 6,085            | 15,175                                      | 310            |
| 4   | Shirol ...            | 44                | 212              | 524                           | 2,195            | 6,537                                       | 310            |
| 5   | Gadinglaja ...        | 58                | 144              | 599                           | 6,395            | 14,745                                      | 219            |
| 6   | Bhudargad ...         | 38                | 73               | 429                           | 4,533            | 9,090                                       | 143            |
| 7   | Vishalgad ...         | 8                 | 27               | 108                           | 782              | 1,420                                       | 42             |
| 8   | Bawda ...             | 25                | 35               | .....                         | 754              | 1,401                                       | 44             |
| 9   | Kagal ...             | 8                 | 103              | 415                           | 4,220            | 16,788                                      | 173            |
| 10  | Ichalkaranji ...      | 7                 | 35               | 43                            | 405              | 5,490                                       | 77             |
|     | Total ...             | 396               | 1,259            | 4,223                         | 41,589           | 1,02,341                                    | 2,055          |

Deducting the children from the total population of the province and taking 40 per cent. of the remainder to consist of those who use shoes and Chepalyás, &c., for the protection of their feet, and calculating at the lowest estimate of only 8 annas per head per year, Rs. 1,50,000 worth of shoes, &c., will be at the least required for local consumption. There is therefore either an error in the figure of total production which is estimated at Rs. 1,02,341 worth, or the deficiency is supplied by imports from abroad. During my own tour of inspection, I found only a few shoemakers coming with their ware from the British districts on the borders at the weekly markets.

Besides shoes, Chepalyas, Motas, and Pakhals, many Chambhars at Kolhapur and at some places in the Alte Peta make good reins, gram bags, and even tonga harnesses, &c. If the patronage of the State be extended to these people as well as to the Mahomedan owner of the new Kolhapur tannery, so far as the requirements of the Rissalla and the Paga are concerned, it will give the industry an impetus which it wants.

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## CHAPTER V.

## MINOR INDUSTRIES.

(1) *Workers in Metals.*

1. Next to cloth-weaving, this industry producing articles of every-day necessity is the most important. So far as the manufacture of cooking and drinking pots is concerned, it can safely be asserted that the industry does not exist in the territory; all the pots required for such a large population from the smallest drinking cup to the largest receptacle for the storage of water or corn are all imported from outside.

Workers in metal may be divided into two main classes—(1) Those who work in iron only, and (2) those who work in brass, copper and tin. Lohars, Ghisadees and Dhawads belong to the first class, and coppersmiths, Karajagars, tinworkers, and Otarees to the second class.

2. In 1854, thirty iron smelting furnaces were said to have been at work in the territory, turning out annually 255 tons of iron of the value of Rs. 9,000 and giving employment to 180 Dhawads, the mining included. For aught that is known, their number was formerly larger still, because it was they who supplied iron for the implements of husbandry, the weapons of war, and the articles of every day use. The scarcity of fuel brought on by the increase in population, and the import of English iron, gradually displaced the native product, so that in 1881 there were no more than 15 furnaces with 53 Dhawads working in them, who turned out only 2 tons of iron. Their number has now dwindled down to 8 working only for 3 or 4 months in the year. As the Geological Survey has proved the abundance of iron ore in the province, and the conservancy of forests is calculated to increase the supply of fuel, a profitable development of this indigenous industry may be looked forward to. This subject has been already discussed both in the Geological Survey report and in my first report on the material condition of the State.

3. The number of Lohars and Ghisadees, whose trade is confined to working in ready-made iron, is 465, and that of their furnaces or shops 305. Many of them are pretty skilful, but as they generally work to order only, they do not turn out more than Rs. 4,730 worth of goods. Their implements of working are expensive and are returned as costing Rs. 4,662. In the Gadinglaja Peta, there are a few skilful men at Gadinglaj, Hebal, and Kadgaum, but whom even better emoluments will not induce to take to better business than working for the cultivators for a share of their produce.

At Panhala there is a Karajgar who has shown himself to be a very superior workman by repairing the surgical instruments belonging to the State Hospital and dispensaries. There is a carpenter at Kaljawade who is well known for the durable temper of his Koyatas, Koyatees, large knives, axes, &c. A man at Wandoor in the Kagal State is as good a workman as those of Panhala and Gadinglaj, and I daresay there are many more like them, scattered over the territory, whom an arrangement for the expeditious sale of their articles will soon bring out of their obscurity. If the contemplated experiments in smelting iron with English furnaces in the Technical School promise well, the prospects of this industry will considerably improve.

4. Coppersmiths, who number only 28 in the whole territory, do not aspire beyond repairing worn-out pots and turning them new. All the copper and brass utensils for cooking and drinking required over this extensive territory, and valued at some lacs of rupees, are imported from Rajapur, Poona, Satara, Shahapur, and Terdal. Last year their import in the town of Kolhapur alone was worth about Rs. 40,000. Though this industry does not require a very high order of skill, Kasars or the professional makers of these pots have given up their hereditary trade, and are now content with importing and selling them. Lately two or three of the class have started shops in the city, where they make gbagars and tapelees and undertake to induce others to come over and settle here, if they are provided with sites for building houses in the vicinity of the town market, and with a capital to the extent of Rs. 500 each.

Otarees and Karajgars work in brass. The former have about 18 shops in the whole province engaging only 44 hands and turning out articles of the value of Rs. 2,062. Rashiwde in the Bawada State has the largest number of them who cast idols, bells, and other small articles, which cannot, however, stand comparison with those of Terdal and Hangandi in the Sangli State. Many Karajgars also cast in brass, and work in brass sheets as well. That Kolhapur is making rapid progress in this kind of work was not only witnessed in the late exhibition, but may be seen any day by visiting the Technical School. The Khasgi, the P. Works and the Municipal workshops might be amalgamated with the School, with all their Lohars, and Karajgars, and machines, tools, and appliances, of which there will be a sufficient number for being worked by a small steam-engine.

The standard of consumption fixed by Government for metal work is from Rs. 1½ to Rs. 2. Taking only Re. 1 per head, metal-work worth 9 lacs of rupees will be required. Of which if only 2 lacs worth be manufactured in the territory it will employ a considerable number.

## (2) PAPER-MAKING.

5. Once very thriving in the town of Kolhapur, this industry now exists in the State only in name. Even so late as 1853 there were no less than 18



dungs or karkhanas, with 666 hands working in them. Their number must have been even larger before, as Kolhapur-made paper was much in demand in the S. M. Country for official records. In competition with the cheaper article of European manufacture, the industry has now dwindled down to three small dunges, employing about 17 hands and annually turning out paper of no larger value than Rs. 2,300; and but for the patronage of the State which still continues to use locally-made paper for envelopes, these would soon share the fate of their predecessors. The material used for making paper consists of old gunny-cloth, which, too, is becoming scarce, being displaced by jute. The machinery is clumsy and costs not more than Rs. 125 or 150. It is useless for reducing cotton rags to pulp; it is capable of improvement. With the introduction of appliances for cutting rags, making them into pulp, and cutting and glazing the paper, the industry may revive. Experiments might also be made with aloe and other fibres which are found in abundance in the State. On trial the aloe fibre has been found to be as good as gunny rags. One small dung may be added to the Jail Factory with new appliances from England for hand-made paper.

### (3) LACQUER WORK.

6. This is one of the useful industries carried on at some places in the territory. Its chief seats are Patgaum and Shiwdaw in the Bhudargad Peta; it is also found at Kolhapur, Shirol, and Chinchali. The Bhudargad lacquer work is the best, and, though at present little inferior to that of Sawantwadi, it can come up to it by encouragement. They have advantages in the cold climate which is favourable for fixing the dye on wood, and in having near at hand the Gela wood (*Randia Dumetorum*) which is strong, takes good polish and receives the dye better than teak or *Shiau*. But their chief complaint is the want of demand for their articles which existed before the Amboli pass was opened for cart traffic. A large pack bullock traffic was then carried on *via* Patgaum by the Hanamanta pass. But since the opening of the Amboli and the Phonda passes, the Kadgaum-Patgaum portion of the Bhudargad Peta not being joined to either of these, the people of this part have been virtually cut off from all communication with outside. As rice of a superior quality is grown in these parts, and coffee also grows naturally, the question of connecting this district with the nearest trunk roads is worthy of attention. Facilities likewise for giving the Gela wood from the jungles, and an arrangement for bringing their ware to the notice of the people, is all that is at present needful to encourage the craft.

### (4) BANGDI-MAKING.

7. This is the only glass industry in the province, and, though useful like lacquer work, is confined to two solitary places, Padali and Fejiwde in the Bhudargad Peta, on the Kolhapur-Phonda road. There are only three shops here employing 26 men, who work at this for about three or four

months and are occupied in agriculture during the remainder of the year. Their business generally consists of melting broken bangdies bought of bangdi-sellers in large towns and making them into new bangdies. Occasionally they make them from lumps of glass also.

Like many other craftsmen, their complaint is that their ware does not sell as it did once, Ghotgiri, Tásgráum, Hattigaum, Wákurde and Ghonasari having driven them out of the trade since communication by roads became easier. But perhaps this is not the only cause of the decline of the industry. The Ghotgiri bangdies are acknowledged to be superior to those made in the State, and to acquire similar former skill and to compete with Ghotgiri, the bangdi-makers say, they require to be abundantly supplied with the raw material for working, instead of their having to go in search of it, and also a ready disposal of the ware turned out. As things stand at present, they have to wait till some one offers to buy their ware. This is not without some force in it. When the market is over-stocked with Kolhapur-made bangdies, selling at the same price as those of Ghotgiri, the importation of the latter may not be remunerative.

#### (5) CARPENTERS.

The number of carpenters in the State is returned at 2,459, working at 567 places. Of these, 2,113 are in Kolhapur proper and 346 in the feudatory States of Kagal, Bawda, Vishalgad, and Ichalkarnji. The last has returned 68, distributed over Ichalkarnji town and Ajare. Information about other places is not forthcoming, but most likely there must be several in such large places as Lát, Shiradwad, Arag, Manerajure, Uttur, and Bahirewadi, as a carpenter is a necessity to the cultivator for repairing and making agricultural implements. The Vishalgad State has returned only 8 as working in Mahagaum alone. Many of the village carpenters in the western portion of the territory do also the smith's work for the cultivator.

Like goldsmiths, the larger towns have a larger number of carpenters, where the building of houses supplies them with work.

Kolhapur town has 129 carpenters, many of whom are skilful, having received their training in the State Public Works Department. The carpentry class in the Technical School is doing all that is needful for the development of this craft. The details are given in the following table:—

| No. | Name of the Division. | No. of places. | No. of shops. | Capital invested in erection. | Working capital. | Value of the articles turned out in a year. | Hands engaged. |
|-----|-----------------------|----------------|---------------|-------------------------------|------------------|---|----------------|
| 1   | Karwir ... ..         | 107            | 386           | 4,781                         | 5,976            | 14,030                                      | 653            |
| 2   | Panbala ... ..        | 120            | 237           | .....                         | .....            | .....                                       | 431            |
| 3   | Alte ... ..           | 40             | 180           | 2,513                         | 40               | 256   | 275            |
| 4   | Shrol ... ..          | 47             | 173           | 610                           | 1,950            | 2,075                                       | 247            |
| 5   | Godinginj ... ..      | 126            | 265           | 4,323                         | 640              | 2,070                                       | 417            |
| 6   | Bhundargad ... ..     | 42             | 85            | 1,399                         | 1,580            | 3,061                                       | 183            |
| 7   | Vishalgad ... ..      | 1              | 5             | 60                            | .....            | .....                                       | 8              |
| 8   | Bawda ... ..          | 38             | 74            | .....                         | .....            | .....                                       | 92             |
| 9   | Kagal ... ..          | 44             | 103           | .....                         | .....            | .....                                       | 173            |
| 10  | Ichalkarnji ... ..    | 2              | 31            | 1,900                         | 10,200           | 20,600                                      | 68             |
|     | Total...              | 567            | 1,490         | 14,627                        | 30,360           | 48,186                                      | 2,459          |

## (6) GOLDSMITHS.

There are 916 goldsmiths in the territory, having 671 places of business. Though not wanting in skill for any kind of work, they rarely turn out articles except to order. The majority of them are confined to large towns, and there are more of them in the eastern divisions of the State than in the western. They are distributed as follows :—

| No. | Name of the Division. | No. of places. | No. of shops. | Capital invested in erection. | Working capital. | Value of the articles turned out in a year. | Hands engaged. |
|-----|-----------------------|----------------|---------------|-------------------------------|------------------|---|----------------|
| 1   | Karwir ... ..         | 48             | 143           | 3,246                         | 1,360            | 1,765                                       | 203            |
| 2   | Panhala... ..         | 40             | 60            | 157                           | 692              | 1,350                                       | 87             |
| 3   | Alte ... ..           | 36             | 86            | 2,400                         | ...              | .....                                       | 115            |
| 4   | Shirol ... ..         | 24             | 71            | 950                           | 2,200            | 4,600                                       | 88             |
| 5   | Gadinglaj ... ..      | 45             | 115           | 2,241                         | 900              | 2,400                                       | 150            |
| 6   | Bhudargad ... ..      | 17             | 37            | 952                           | 575              | 735   | 42             |
| 7   | Vishalgad ... ..      | 12             | 21            | 455                           | 1,500            | .....                                       | 26             |
| 8   | Bawda ... ..          | 16             | 57            | .....                         | ...              | .....                                       | 59             |
| 9   | Kagal ... ..          | 28             | 63            | .....                         | ...              | .....                                       | 90             |
| 10  | Ichalkarnji ... ..    | 4              | 24            | 515                           | 200              | 10,000                                      | 56             |

In the Karwir Peta, Kolhapur City alone has got 96 shops. In the Alte Peta, Alte, Kumbhoj, and Sawgaum have more than 5 each. In the Shirol Peta, Nandani has 10 shops, and Shirol and Rayabag 5 each. In the Gadinglaj Peta, Katkol has 13, Shirgaum and Gadinglaj 9 and 8 respectively, and Kadgaum and Lat 6 each. Though 40 of the villages in the Panhala Peta have them, there are nowhere more than four in one place. In the Bhudargad Peta, Shengaum and Walwe have 5 each. Out of 4 places in the Ichalkarnji State, three have 8 each. Margud and Chikhali in the Kagal State have 7 each, and Kagal and Murgud 6 and 5 respectively. In the Vishalgad State, Malkapur has 12, and in Bawda there are nine villages having more than 5 shops each.

Their work chiefly consists of making gold and silver ornaments and silver pots. No statistics have been collected about the quantity of gold and silver imported into the territory or about the silver pots exported. In the town of Kolhapur a good number of goldsmiths are in the service of half a dozen capitalists who export the silver-ware prepared by them. The trade would appear to have considerably increased since the depreciation of silver.

## (7) JINGARS OR SADDLERS.

There are about 40 Jingar shops in the State, engaging about 71 hands, who principally make native saddles worth about Rs. 6,645. The demand for these saddles being not what it was before the introduction of the English article, the industry is declining and is now confined to Kolhapur, Ichalkarnji, Malkapur, Kagal, &c., where native saddles are still used for the Sowars and other retainers of the Chiefs. The Jingars have, therefore, taken to book-binding, which is gradually showing improvement. The Kolhapur Mission Press turns out superior binding work and deserves encouragement.

All other industries, besides those enumerated, are of minor importance, and, supplying only local wants, deserve only a passing notice. Cane and coir-work have made some progress in the Jail workshop, but few outsiders have yet taken to them. Bamboo-work too has not come out of its old groove. Though there is a large class of Bamboo-workers in the territory, the import of Bamboo-work from below the Ghauts is extensive.

Confectionery has received an impetus from contact with outsiders who have settled here and effected considerable improvement in the quality of the articles turned out. The same remark applies to the trades of perfumers, tailors, Patwegars, and a host of others. Tailors generally use European and American sewing machines and their trade is thriving. Rangárees give only fugitive colours to turbans and Shelas. Their trade is not very thriving.

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## CHAPTER VI.

## MINERAL AND FOREST INDUSTRIES.

## MINERAL RESOURCES.

1. The mineral resources of the province are rather poor, and consist principally of iron, manganese, gypsum, slate, lime stones, building stones, pottery clays, and wall paints. Some traces of copper were observed in a deep cutting on the Kolhapur State Railway, but it was not of great importance. Copper ore is also said to be found on the Salva mountain in the Bawda State below the Ghauts. As this part has not been surveyed, the ore requires to be tested as regards quality and quantity. Some traces of manganese exist near the village of Bijikuppi of the Torgal State. Only a small vein of what is known as Pyrolusite or oxide of manganese occurs in a small nullah about a mile east of the village, but the quantity is yet to be ascertained. Iron ore is found over a large area, but it cannot be smelted for want of coal or other fuel in its vicinity. Gypsum is found in a small quantity at Tambyachiwadi in the Bhudargad Peta. Slate is found in the Torgal Jahagir, but it is not sufficiently laminated. The other minerals are unimportant. The Geological Survey has brought to light nothing that was not already known. The smelting of iron has been fully treated in all its aspects in the Geological Survey Report, and I have already stated what little can be added to it.

2. The Plaster of Paris in the territory has no bright future before it. The quantity of the material is too limited to make its mining pay. Even at Tambyachiwadi, where the best mines exist, the veins are in process of formation and may pay their mining after another 40 or 50 years.

The slate mines promise better. One kind of slate stone found in the territory shows too few cleavage planes to be called true slate, but can be successfully worked by sawing. Though this process is tedious, the cheapness of labour in the slate district will not make it difficult to compete with the English-made slates.

The principal slate mines are at Torangatti and at Shidnal near the town of Katkol within the limits of the Torgal Jahagir. The former, according to the Geological Survey, extend over an area of more than 14, and the latter over more than 1,000 acres. The stones in the latter, though hard, have distinct cleavage planes and can be split into laminæ from half an inch to 6 inches in thickness. They are therefore best suited for flooring and paving. Slabs so large as 12 ft.  $\times$  5 ft. can be mined, but not near the surface. The deeper we go, it is just likely that there may be thinner cleavage planes, so as to make the stone useful for writing slates and also

for roofing. This has never been tried, though the Torangatti mines have had a fair trial. Experiments made with the Torangatti stone have shown that it is soft enough to be worked with saws, chisels and planes, like wood. A small factory with lathes, &c., to be worked by hand, and turning out knick-knacks, will give employment to a good number of people of the place.

Another slate mine has been lately brought to notice in the Bawda State, the stones of which look like true slate, but have no lamination and much resemble the Torangatti stone. It is in the Salva mountain already referred to, and which is also supposed to contain many other stones, such as corundum, whetstone, lime stone and even copper. At a small distance from the place are to be found the fire-proof stones, used for the furnaces of Bangdi-makers previously referred to, suitable for fire-bricks. A visit to this interesting mountain, which I hope to be able to make, will throw much light on the subject.

Lime stones are found in the Torgal Jahagir and are useful for building purposes. They have also been tried for lithography, but having been taken from the surface, were found too hard for the impression to last for a large number of copies. Experiments have yet to be made with stones taken from some depth below the surface.

The building stones found in the Kolhapur Territory are very good and take a beautiful polish almost like marble, particularly those found on the Panhala and Jotiba-hills. They are much in request for making pestles and mortars, and, from an industrial point of view, this is the only purpose to which they can be put, though the labour of working and polishing them makes the articles very expensive. It is prized not only for its extraordinary hardness when polished, which resists steel like quartz, but also for being proof against the action of acids and chemicals. The only defect they have is that they cannot stand fire.

Many earths useful for colour-washing are found in the Bhudargad, Panhala, and Gadinglaj Petas. Though used by the P. W. Department, and also by the public, they are not of such importance as to be industrially useful. Many pottery clays found in the State have yet to be tried. They might be sent to the Pottery works at the Bombay School of Art to ascertain their value as industrial articles. Among these, the one found at Salpyachiwadi appears specially valuable. The clay found in the Gadinglaj Peta, especially at Basapur, is best suited for making tiles like those of Belganm, and that found near Shengaugam in the Bhudargad Peta is suited for making excellent bricks.

### (3) SALTPETRE.

3. Manufacture of saltpetre used to be carried on at Sawan datti, Niljee and some other places in the Rayabag Mahal, till it was stopped through the interference of  
 Manufacture of Saltpetre.

one of the Mamledars of Shirol, who supposed that being a variety of salt, as its Vernacular name "Sormith" implies, it came under the Salt Act. A reference to the Collector of Belgaum, in whose district saltpetre is manufactured, has, however, elicited that, as the article in question is quite different from that contemplated by the Act, its manufacture can be allowed under a special license. That many places in the Rayabag division are peculiarly suited to its manufacture is shown by the surface soil containing this salt and to its having been once actually prepared there as stated above. This simple industry appears to have formerly engaged a good number of men, but has now nearly died out. The best way of reviving it will be to take up locally the supply of saltpetre required for the manufacture of native gunpowder for the State.

#### FOREST RESOURCES.

4. From what has fallen under my own observation of some of the important tracts of the forests in the territory, without any technical advice or other assistance from an official of the department, as none higher than forest inspectors could be spared for the purpose, the forest resources of the province would appear to be more capable of development than the mineral. Forests of the State, which are principally situated in the Bhudargad and Panhala Petas, the Bawda and the Vishalgad States, and the Ajari Taluka of the Ichalkarnji State, all bordering on the Sahyadri, were being freely denuded by the fires of Kumri cultivation and the reckless felling of wood till 1878, when a forest department was organised under a trained officer borrowed from the British Government, for the purpose of systematically preserving and restoring them.

Seed of indigenous growth has since been sown over more than 35,000 acres of forest land, and about 6 or 7 lacs of seedlings grown either in the nurseries or spontaneously have been transplanted. This has borne fruit in a large return of forest revenue, of which Hirda-nut alone yields more than a lac of rupees, all other sources, such as timber, fuel, &c., giving only an additional 20,000. This is, however, only the beginning, and a great deal still remains to be done. Forest settlement, which quickly followed in the wake of forest conservancy, is now approaching completion, but the boundary marks are yet to be put up, to distinguish forest lands from Mulki Pada and private lands. Till this is done, the department cannot know the exact limits under its charge or turn its undivided attention to its proper functions, viz., the introduction of scientific forestry and the preparation and carrying out of regular working plans.

5. The system of working plans, the object of which is to ensure a careful husbanding of resources, by taking account of the forest capital and growing stock by preventing regular fallings and the

Working plans, Forest settle-  
ment and grazing grounds.

collection of produce at periodical times, by re-stocking the cleared areas, filling up blank spaces, and preserving the young trees until they are strong enough to be left to themselves, being still unknown to many of the subordinates, the department is not able to afford employment to as many people inhabiting the vicinity of forest tracts as it would be capable of.

The settlement will require to be revised before the boundary marks are put up, as the work, having been done piece-meal by a succession of officers, is wanting in uniformity. In some instances, the forest department was not even consulted, and lands not suitable for the purpose were included into forests. Setting apart of grazing grounds for the cattle has not received its due share of attention, especially in the eastern part. Take Shirse and Horawade, for instance, in the Karwir Peta, where forest boundary runs so close to the village as to leave the people no grazing ground. Grazing ground left at Horawade is only a little more than half an acre, and that at Dhamud, with 978 cattle, is only 14 acres. There is a similar complaint from Parite and other places in the Peta, as also from many in the Alte Peta and the Rayabag Mahal, that from the Dhangars being most bitter. As agricultural operations depend so much on cattle, they are entitled to a certain allowance of free grazing.

The following table gives the number of cattle and the grazing ground left in each of the Petas :—

| No. | Name of the Division. | Number of villages. | Total area in acres. | Number of cattle. | Number of sheep. | Grazing ground in acres. |
|-----|-----------------------|---------------------|----------------------|-------------------|------------------|--------------------------|
| 1   | Karwir ... ..         | 135                 | 188,120              | 63,972            | 18,734           | 2,740                    |
| 2   | Panhala ... ..        | 202                 | 299,961              | 67,199            | 23,893           | 6,857                    |
| 3   | Alte ... ..           | 49                  | 139,528              | 45,071            | 32,267           | 4,255                    |
| 4   | Shirol ... ..         | 64                  | 209,344              | 52,119            | 32,912           | 3,264                    |
| 5   | Gadinglaj ... ..      | 176                 | 311,587              | 66,312            | 32,360           | 5,925                    |
| 6   | Bhudargad ... ..      | 194                 | 312,264              | 54,464            | 8,370            | 2,016                    |

From this it will appear that Karwir and Bhudargad are the worst in this respect. One acre for 30 or more animals is decidedly inadequate. The Karwir Peta suffers more, as the forest area therein is also very limited. Panhala is better off. Gadinglaj is not so bad as Karwir. Alte and Shirol look pretty well off as far as figures go. But on account of the rocky nature of the ground and scanty rainfall, they require thrice as much grazing ground as that in the Western wet districts. The complaints of the cultivators and Dhangars of Karwir, Alte, and Shirol Petas deserve to



be investigated. Wherever the land taken into the jungle is in close proximity of the village, if it be converted into protected jungle and free grazing allowed, instead of into reserved jungle, it will meet the necessities of the case. The rules fixing the allowance for villagers of wood for fuel, timber for house-building, and loppings of trees for ráb or ash manure should be definitely laid down and published for their information, and lastly an adequate area should be reserved for Kumri cultivation, which is not the case at present, especially in the villages of the Panhala Peta bordering on the Sahyadre. Many villagers in this Peta and Bhdargad and in the States of Bawda and Wishalgad subsist solely on this sort of cultivation, and it will be unwise to deprive the inhabitants of such places of their only means of livelihood without providing them with something else to live by. In substantiation of the truth of this, witness the desperate encroachments made on the forests last year. A separate detailed report has been submitted on this subject.

6. Besides timber and fuel, the economical products of the Kolhapur Forest products. Forests consist of honey, wax, gums, resins, dye-stuffs, tanning materials, lac, fibres, paper materials, detergents such as shikekai, ritha, niwali, &c., and a variety of medical drugs.

The collection of many of these wild products and the growth of some of the trees producing them will, while affording employment to a large number of forest inhabitants, bring a respectable revenue to the State. That the system of farming out the collection of such products at present followed in the Basapur group, or that of issuing passes for collection on payment of small fees, cannot develop into large trade, was proved in the case of the Hirda, before the State undertook its collection and sale departmentally. They should therefore be found utilized on the same system as the Hirda.

7. The first in point of importance among the products enumerated above are the gums. The trade in Indian gums was very poor till their commercial value was prominently brought to notice at the Indian Colonial Exhibition. The exports of gum from India in 1883-84, the year immediately preceding the Exhibition, were only 2,180 cwt., valued at Rs. 24,538. They went on increasing during the five years immediately following, and there was a fall in the next five; the capacity of the trade for development will be well marked from the following figures :—

| Years.  |     |     | Value of gum exported. |
|---------|-----|-----|------------------------|
| 1883    |     |     | Rs. 24,538             |
| 1885-86 | ... | ... | „ 15,97,997            |
| 1887-88 | ... | ... | „ 17,54,963            |
| 1888-89 | ... | ... | „ 28,27,999            |
| 1890-91 | ... | ... | „ 9,78,288             |
| 1892-93 | ... | ... | „ 6,61,164             |

The following gum trees are found in the territory:—

1. Babul—*Acacia Arabica*.
2. Dhawada—*Anogeissus Latifolia*.
3. Khair—*Acacia Catechu*.
4. Kumbhya—*Careya Arborea*.
5. Beheda—*Terminalia Belerica*.
6. Palas—*Butea Frondosa*.
7. Balant Nimb—*Melia Azadirachta*.
8. Char—*Buchanania Latifolia*.

The gum of the Babul tree is extensively used by calico printers. In combination with that of Dhawada it is regarded as most serviceable for certain colours. Its gum is not the only useful product of the tree. Its bark, pods, and leaves are used as a tan and a dye; and wood valued for its hardness and durability. No special arrangements seem to be made at present for increasing the number of these trees, though it thrives very well in the black soil of the plains in a dry climate, except some groves recently attempted by the forest department in the Shirol and Alte Petas. The cutting down of old trees by the villagers till a corresponding number of new ones has been planted ought, if possible, to be prohibited, as it is perhaps the only valuable tree which can grow in the dry climate of the eastern part.

*Butea Frondosa* or Palas yields, naturally or from artificial scars on the bark, a gum which is sold as Bengal Kino or Chunia Gond. It occurs in the form of round tears as large as a pea, of a ruby colour and astringent taste. This is more soluble in water than in spirit, while it is just the reverse of true kino. Though its use is at present confined to medicine, and for industrial purposes it has made no progress, it seems to have a good future before it both as a tan and a dye. In India it is used to precipitate and purify blue indigo. If its timber be treated as in the preparation of catechu it is possible to obtain a pure tanning extract more suitable for industrial purposes than the gum.

Next to the Babul, the Dhawda is a valuable gum-producing tree and grows abundantly in the Basapur jungle where alone its number exceeds a hundred thousand, to say nothing of its growth in other parts of the territory. Though in point of adhesiveness the Dhawada gum is considered inferior to Gum Arabic, it has a high reputation with calico printers. The leaves of the tree are largely sold in Bombay for tanning. The gum of other trees mentioned above, though not so valuable, can be collected and sold along with that of Dhawada. This collection deserves to be tried in the Basapur jungle for two or three years, as here along with gum many other forest products can be collected.

8. Catechu is another useful substance, the extraction of which can be turned to good account. This gum is found in Khair or *Acacia catechu*, Awala or *Phyllanthus Emblica*, Areca palm or betel nut and *Uncaria Gambier*. The first two abound in our jungles, Basapur Jungle being specially noted for the best Awalas. Inferior kinds of Awalas which are better suited for the extraction of the gum are to be found in all parts of the Sahyadri. Khair is another valuable tree that yields catechu. Like Babul it thrives in a dry climate, as well as in a moist one. Khair trees abound in our jungles. At Panori, Ayani, and in their vicinity, and also in the Basapur jungle, I saw a very large number of them. Unlike Babul they can grow in inferior Mál land in the eastern part. The Jatha and Mudhol States are filled up with them. It is worth while attempting their growth in the Alte, Shirol, and Gadinglaj Petas along with Tarwad, and starting catechu manufacture by entertaining a few Kátaries in the forest department. Catechu is extracted from it by boiling down the decoction of the chips of its heart-wood. Catechu is largely exported to foreign countries, so much as Rs. 35,00,000 worth having been sent out annually during the last five years. If the Areca nut plantations suggested elsewhere be successful, they too will yield this product. *Uncaria Gambier* does not exist in our jungle, but its cultivation might be tried.

9. *Tanning materials*.—The following products in the territory yield tannin :—

1. Babul—*Acacia Arabica*.
2. Khair—*Acacia Catechu*.
3. Hirda—*Terminalia Chebula*.
4. Beheda—*Terminalia Bellerica*.
5. Ain—*Terminalia Tomentosa*.
6. Kinjal—*Terminalia Paniculata*.
7. Dhayati—*Woodfordia*, *Floribunda* or *Grislea Tomentosa*.
8. Awala—*Phyllanthus Emblica*.
9. Tarwad—*Cassia Auriculata*.
10. Dhawada—*Anogeissus Latifolia*.

Of these, the Babul and Tarwad barks, and the Hirda nuts are extensively used for tanning leather; the Hirda is the only one that is cultivated and systematically collected as an item of revenue, the Babul bark being collected for local consumption by private persons only. Though the catechu extracted from the Khair and the Awala does not hold a high position as a tan owing to the colour it imparts to the leather, it contains from 45 to 55 per cent. of tannin, and is therefore used more as a dye than as a tan; like Beheda, the collection of which is said to have been not remunerative locally. There is, however, apparently no reason why Beheda should not fetch a better price in Bombay, where it forms one of

the articles of export to foreign countries. The bark of the Ain and the Kinjal are in demand for tanning in the Konkan, the reddish tinge they give to leather being against their use above the Ghauts. Containing a larger percentage of tannin than the Hirda, the bark of the Ain has a hopeful future as an article of commerce when it comes to be sufficiently known in Europe. On examination at the Colonial Exhibition it was declared to be useful for tanning. In India it is used for dyeing in conjunction with Babul, Asan, and other barks.

The Kinjal-bark and fruit are still less known in Europe. Samples of them along with others might, therefore, be sent to the Imperial Institute for examination and report.

In some parts of India, Dhayati flowers are used for tanning. Mr. Wardle of the Imperial Institute, who examined a sample of them, has reported them to contain 20.6 per cent. of tannic acid and classed them with the best Indian tanning materials. Perhaps the leaves of the plant may prove of equal value. The Tarwad bark, the most valuable tanning material, has been treated at considerable length in another part of this report. (*Vide* Tanning.)

10. Dye-stuffs are the next important materials found in the Kolhapur forests, and many of them are still largely used, the introduction of aniline dyes notwithstanding. The principal dye-stuffs found in the territory are —

Dye-stuffs.

|                     |     |     |     |                     |
|---------------------|-----|-----|-----|---------------------|
| 1. Surangi          | ... | ... | ... | Achro Carpus.       |
| 2. Manjishtha       | ... | ... | ... | Rubia Cardifolia.   |
| 3. Dhayati          | ... | ... | ... | Grislia Tomentosa.  |
| 4. Kapil or Kamella | ... | ... | ... | Rottlera Tinctoria. |
| 5. Kala Kuda        | ... | ... | ... | Wrightia Tinctoria. |
| 6. Kesari or Anato  | ... | ... | ... | Biria Orellana.     |
| 7. Patang           | ... | ... | ... | Cæsalpinx Sapan.    |
| 8. Palas            | ... | ... | ... | Butea Frondosa.     |
| 9. Takala           | ... | ... | ... | Cassia Tora.        |

Of these, Surangi, Manjishtha, Kapil and Dhayati are the most important. The first two were extensively used by the dyers of Gokak, Rabkawi, Shahapur, and Shirgaum for dyeing cotton yarn and fabrics Turkey red, till they were recently replaced by the German aniline dyes. The roots of Surangi, and Manjishth are, however, in great request still. As the number of both these trees in the territory is not large, planting them is worth attention. The Dhayati flowers, which contain a yellowish colouring matter, are either used by themselves, or as an adjunct in the process of dyeing, their best use being for dyeing silk and wool.

Kapil or Kamella commands a large trade in Bombay as a still more valuable dye-stuff, fetching so much as Rs. 11 per maund of 41 lbs. The

tree grows wild in some parts of the jungle, and the dye-stuff consists of a powder scraped from the surface of the fruit which gives silk a fast yellow colour. In Europe it is sold at 10s. 6d. per lb., in Northern India at Rs. 22 per cwt., and in Mysore the average price per maund ranges from Rs. 6 to 7. The cultivation and growth of this tree deserves attention.

The seeds of Kala Kuda or Indra jawa are used as an adjunct in dyeing. In Southern India the leaves of this tree are the source of a blue dye or indigo, which latter is extracted from them by Roxburg and Fischer and fetched from 4 to 5½d. per lb. The leaves were boiled and the dye was separated in a straining vat. The great objection to their utilization in competition with ordinary indigo appears to have been the limited quantity of leaves obtainable at any one place, and the large area over which they have to be collected. This difficulty can be surmounted by increasing the growth of the plant over a large area of forest land. There is another tree in the jungle going by the name Neeli whose seeds yield a stuff like indigo. But it is yet to be examined and tested.

Kesari, Patang, and Palas are inferior dye-stuffs inasmuch as the resulting colours are fugitive. Takala seeds are very largely used by all the Nilarees in dyeing yarn and stuffs indigo blue. It finds a ready sale. The bark of the plant yields a yellow dye.

11. *Fibrous Plants*.—Besides the agave or aloe, which will be treated separately, the following are the fibre-producing plants found in the Kolhapur jungles:—

Fibrous Plants.

- |             |     |     |     |                            |
|-------------|-----|-----|-----|----------------------------|
| 1. Palas    | ... | ... | ... | Butea Frondosa.            |
| 2. Kumbhya  | ... | ... | ... | Careya Arborea.            |
| 3. Cher     | ... | ... | ... | Erinocarpus Nimmoanus.     |
| 4. Khawashi | ... | ... | ... | Sterculia Colorata.        |
| 5. Rametha  | ... | ... | ... | Lasiosiphon Erioccephalus. |
| 6. Kewan    | ... | ... | ... | Helicteres Isora.          |
| 7. Apata    | ... | ... | ... | Bauhinia Racemosa.         |

Palas yields a strong fibre which is useful for paper-making and cordage. Even its young roots yield a good fibre. As these trees abound in our forests and can grow rapidly requiring no care, extraction of their fibre deserves a fair trial.

Kumbhya bark yields a good fibre for coarse cordage and for brown paper of good quality. This tree also abounds in our forests and requires no care. The fibre can be very easily extracted without rotting. As the timber is of no use, it is a tree fit to be used for extracting its fibre.

The Cher tree abounds in our forests, especially in the Bhudargad and Panhala Petas. I saw a very large number of them at the villages of Yejiwade in the Bhudargad Peta, and Parali and Sonurla of the Panhala Peta. Its bark yields an excellent fibre for ropes and for paper. The bark requires

to be allowed to rot before its fibre can be extracted. Its timber is useless, and can be used as fuel only. When its branches are cut off, fresh ones sprout and can again be used next year. The extraction of the fibre from this tree can engage a very large number of forest tribes. The fibre is even now used for making ropes, &c., and can find a ready sale in Europe if exported.

Rametha is a small tree or a large shrub existing in all parts of the jungle. It is of no use whatever, and reproduces spontaneously. Its bark yields a fibre which can be used for paper. Its leaves and bark are acrid and poisonous, and therefore the extraction of the fibre is not so easy as that of others. But the large number of trees that are to be found in all parts of the forest would tempt one to try the extraction, and if it be profitable to ship, it will engage a large number of people in the industry.

Palas, Cher, Kumbhya and Rametha abound in our jungles and can give hundreds of khandies of the fibre. Their natural growth is so much that it will sufficiently meet the requirements. As the fibre from the bark of the branches only is to be extracted, the main stem lives and reproduces. The bark of the first two is not poisonous and the extraction of the fibre from them is not troublesome. Extraction of the fibre from these deserves a trial.

Khawashi bark yields a coarse fibre which may be used for ropes. It may do for paper-making; but it cannot be said whether its extraction would pay. The available information is meagre and I did not come across a large number of trees of this variety. The Forest Officer says that this tree is exotic to Kolhapur and indigenous to below the Ghauts. The quantity that can be obtained will be very limited.

Kevan is an arborescent shrub of the dry forests. Good fibre can be extracted from the bast or inner bark. It is useful for cordage, rough sacking and canvas, and may be found suitable for paper. Its growth in our jungles may be increased with advantage, as its leaves also form a good fodder for buffaloes.

Apta tree is largely found in our jungles. Its inner bark yields a good strong fibre used for cordage. Extraction of fibre from this tree deserves a trial, as its growth can be easily increased.

Though the jungle fibrous plants do not appear to have as bright a future before them as aloe, still they deserve a trial, as their growth is natural and does not interfere with other jungle trees.

In order to ascertain definitely the value and price of aloe and other jungle fibres produced in the territory, some samples were sent by Mr. Candy, Principal, Rajaram College, from the local museum to the firm of

Messrs. Thirkell and Co., London, for opinion. I quote their remarks on some varieties below :—

“We have examined your samples of fibre. These are all old and may be deteriorated thereby.

1. ‘Sterculia Colorata’ (खवशी) a best bark, good colour.

2. ‘Butea Frondosa’ (पकस) a best bark, good colour. Rather coarser and darker. Both the above are suitable for paper only and would not pay to ship unless first reduced to half stuffs and then the value would probably be greater in India than here, where we have material at bare cost of freight from Europe, &c. (from £1.1 to £5 per ton).

3. ‘Hibiscus cannabinus’ (आंबाडा) a well known fibre of the character of jute rarely imported; value of sample £10 to £12 per ton, if well cleaned and of full strength probably £15 per ton.

4. ‘Brino carpus’ (चर) coarse, tender jute-like fibre, £10 to £10 per ton; if well cleaned value probably £12 to £14 per ton.

5. ‘Aloe Indica’ good length, poor colour, imperfectly cleaned. Value as it is £15 per ton, if well cleaned and white as usually turned out by your machine it would to-day be worth £22 to £25 per ton, or more.

6. ‘Agya’ Sample, prepared and spoilt beyond exact identification, contains some strong (but brittle) good fine textile fibre (in some respects not unlike Rhaea) with a good deal of short poor tows. If properly treated we think this plant will produce a very useful fibre. Without proper specimens, exact value cannot be given, but probably £30 per ton and upwards for the long clear fibre if strong and white, and £15 to £20 for the short fibre.

This latter fibre (Sample No. 6 Agya fibre) appears worth attention; a few cwts. or tons should be sent for trial. As it is, it would only sell for paper or low mixing purposes at say £5 to £20 per ton.”

The rates quoted for Khawashi and Palas are rather low and may not probably pay extraction. But the rate quoted for Cher which abounds in our jungles is hopeful. A ton or two of this fibre should be extracted and sent for trial.

I did not refer to Ambada and Agya above as the former is a cultivated variety, and the latter does not grow in the jungle. Agya is a valuable plant. The Forest Department is trying to grow it. This plant is found on village sites, in fences, and gardens, and on such other land where there is organic and rich manure. It is a small plant not exceeding 3 feet in height. It germinates in the monsoon and dies in November or December. Extraction of the fibre is as dangerous as that of Rametha.

12. *Paper Materials*.—Most of the fibres and even the refuse thrown in their extraction can be used for coarse and fine paper. In addition to this I have to mention wild bamboo and the Tambet variety of grass which abounds on the Sahyadri and in its vicinity, and which is used only for covering the huts of the poor agriculturists.

The bamboo is acknowledged to be a valuable material for paper. Wild bamboo grows and thrives well in all parts of our jungles both in the regions of excessive as well as scanty rainfall. The wild variety not being either tall or big is not much used for building purposes. They are seldom higher than 10 feet and always less than an inch in diameter. On account of the silicious covering, large bamboos are difficult to be reduced to pulp. But the young and succulent roots, before the plant has had time to develop much silicious covering, are very easily reduced to a suitable paper-making material. If the young shoots be crushed and thus deprived of their sap and juice, and then digested in a weak alkali solution, and thus, fibre be partially prepared on the spot for export, the quality of the pulp produced from such fibre is said to be excellent. Bamboo grows rapidly and if the cutting of the shoots be done carefully, the plant will continue to throw out fresh shoots year after year. This bamboo, therefore, deserves a trial, as it can be grown in the wettest and most exposed regions where other plants cannot thrive.

I saw a very great development of this wild bamboo on the hills adjoining Naniwala (Sarangi), Kamarde, Bhandane, and also at many other places. It grows even in the midst of Karwi which if thinned will allow more scope for its growth. Surangi Dung has always more than 200 inches of rain and most exposed to the westerly monsoons.

Tambet grass generally used for covering the huts towards the Sahyadri grows luxuriantly towards the Sahyadri and does not serve as fodder for cattle. If it can serve as a paper material it can be supplied in large quantities. It grows in many localities as tall as 4 or 5 feet and the blades are stout. If the blades and not their coverings can be used for paper, it will make a good paper material and can fetch good revenue. This should also be submitted for trial.

Gorakhachinch or *Adansonia Digitata* yields a very valuable fibre from its bark which can be used for all purposes. On account of the slow growth and careful cultivation of the tree, the supply is not very large. It is now imported into England and sold at £9 to £15 per ton. It is valued specially for durable and tough paper. It makes an exceedingly strong paper suitable for bank notes and stamp paper. The tree is common in this part and is only valued for its medicinal uses. Its fibre may be



extracted and tried for paper in the local dungs. If it makes white and strong paper, it can be used for stamped paper instead of importing the same from England.

13. *Detergents or Soap substitutes.*—Detergent substances are those which have the power of cleansing wounds, &c. Soap substitutes. But I have to notice here only those which are used as soap substitutes on account of their special properties. Many of these exercise a chemical influence not possessed by soap. It is admitted by many that certain peculiar results in dyeing can be obtained, only when the fabric has been first washed with certain detergent vegetable substances, and the same results cannot be brought about if soap be used. *Ritha* fruits and *Shikakai* pods have been used from immemorial times as soap substitutes in India for domestic purposes. *Ritha* or soap-nut was also used for washing Kashmir Shawls and other woollen and silk fabrics in India. It has now found its way to European markets, and for flannel and other woollen stuffs it is greatly preferred to soap, and some varieties are specially esteemed for washing silk. Even now a considerable foreign trade is carried on in both these products, and their cultivation and growth is likely to pay. I shall, therefore, notice a few of these common in our jungles.

Many of these were used before the introduction of soap, not only for cleaning, but also as hair washes and for promoting the growth of hair, and also as insecticides, *i. e.*, to remove vermin and insects. The chief detergents or soap substitutes common in our forests are *Shikakai* (*Acacia Consina*) and *Ritha* (*Sapindus Mukorossi*).

*Shikakai* pods are still largely used for washing the hair and body instead of soap, and a considerable trade is carried on even in our territory. Its departmental collection and sale will pay a larger revenue than it does at present, as it is becoming an article of export. This substance has not yet been thoroughly investigated by the Europeans.

*Ritha* pulp makes lather with water and is used for washing either by itself or mixed with soap. It is especially preferred for flannel, Kashmir Shawls, Dhabelaes and silk. When the fabric is first washed with this tinctorial results are great. In India it is still used for washing clothes and hair, and produces better results than soap. When mixed with warm water, a fine lather is soon produced, and the most delicate fabrics, even silks may be washed without destroying the colour, which would yield to a coarse alkaline solution. For finer washing, skin and shell of the seeds are only used. The nuts contain the principle termed saponine. These nuts are now largely exported. The cultivation and growth of these two plants deserve attention, as these are ere long likely to be used for industrial purposes.

14. Medical drugs are another important item of our forest produce.

Medical Drugs. That their number is not small is proved by the collection made by a local forest subordinate having a knowledge of Indian medicine for the Industrial Museum. I need hardly add any thing here to what I have said on the subject in my preliminary report on the Industrial condition of the territory except a hope that the contemplated drug garden near the village of Balinga may be at once taken in hand. The Katyayani hill is another site suitable for the purpose where plants yielding dyes, tans, fibres and gums might also be grown.

15. Silk-worm breeding or sericulture has not yet received any trial in this part. As the Tasar worm is fed on species of

Sericulture. Terminalia such as Ain, of Carrisa such as Karwanda, of Sagar Strœmia Indica such as Dhayati, of Careya Arborescens or Kumbhya and some varieties of Ticus Benjamina or Pimpree, which are all plentiful in our forests, and if necessary can be easily reared, experiments in sericulture are worth making, especially as we have now at the head of our forest department a person who has gone through a course of this study. That it does succeed in this part of the country is manifest from its gradually forming an important industry in Mysore and in Madras.

16. Lac is another substance produced in our forests which can be turned into an article of commerce. The insect secret-

Lac. ing it is indigenous to the forests of India and feeds on the Babul, the Khair, the Palas, the Karwanda, the Pangara, the Pimpal, the Bibba, the Ain, the Bor and also teak which all abound in our forests. There are big Palas-trees in the Basapur forests, on which the insects can be bred at once by way of trial. Lac worth from Rs. 50 to 70 lacs is annually exported from India, and a larger quantity still is consumed in the country.

17. While speaking of these resources of the jungles I may be allowed to observe that the forest conservancy of the State will

Forest Survey. be all the better for trained inspectors and foresters, and for a systematic forest survey by an expert who may be able to bring to light many more useful products than a non-professional man like myself. It is as important, if not more, as the Geological Survey, because, as already remarked, the forest resources of the province are more valuable than the mineral. When a systematic forest survey is conducted many more useful products will be brought to light, and forest resources can be better developed.

## CHAPTER VII.

## NEW AGRICULTURAL INDUSTRIES.

## ALOE CULTIVATION AND FIBRE EXTRACTION.

Though nothing definite is yet known about the quantities of ropes required and consumed in the territory and the demand for them outside, there can be no question that the demand for aloe and other kinds of fibre for making cordage, paper, gunny cloth and bags is on the increase in this as well as in foreign countries. The immense and growing demand for new and cheap textile materials, has recently caused the agave or aloe fibre to be an article of important industry in many places. It is largely exported to Europe from America, the Mauritius, the Bahama and the Pacific islands. Though various species of it are now widely to be found in India, the industry has not attained any magnitude.

2. Ghayapat or agave, the so-called American aloe is quite different from the true aloe or Korphad. The former is chiefly valued in India as a fibre-producing material, while the latter, which also produces fibre, is chiefly valued for its medicinal properties. I propose to write here about the former or agave species only.

Agave is indigenous to all parts of tropical America from the plains to places at a height of 10,000 feet. But it is now naturalised in South Europe, the Mauritius, Algeria, throughout India and the Bahama and the Pacific islands. The plant requires from 3 to 5 years to come to perfection. But it is exceedingly hardy, easy of propagation, very prolific and grows in arid wastes where scarcely any other plant can live. It perishes after efflorescence which does not occur till 8th to 20th year, but it then sends off numerous shoots. Each plant after two years throws out abundant root-suckers which can be utilised for another plantation. These suckers grow much more quickly than the seedlings obtained from the flowers on the poles. If these suckers are not removed, the main plant does not become very healthy and throws out its pole much sooner.

Dr. Watt in his "Dictionary of the Economic Products of India" says about this plant as follows:—

"Flourishing under the most diverse circumstances, the Agave is in India eminently suited for providing a supply of fibre, if not for trade and exportation, at least for domestic purposes. Every encouragement should therefore be given to develop an interest in this most useful plant. In America rapid progress is being made in this direction, and it is evident that, with the American inexhaustible supply, and with improved machinery, Agave fibre must sooner or later affect certain branches of the jute and other textile industries. For cordage it is now held in high esteem and the

manufacturers assert that the fibre imported into England from America improves every year. It is composed of large filaments, white and brilliant, and readily separated by friction without danger to the fibre. It takes colour freely and easily. It is light, contracts under water rapidly, and becomes fixed, while it bears changes of humidity even more severe than can be resisted by the best hemp. In London the aloe fibre generally fetches from £ 35 to £ 40 a ton" (i.e., 93½ maunds of 12 pakka sheers each).

In Mexico, the Mauritius, and the Bahama islands a large amount of capital has been invested in large plantations, and immense quantities of the fibre are exported to Europe. In Mauritius the Agave fibre attracted attention within the past few years, on account of the sterilization of the soil, through the constant cultivation of sugar-cane, and the necessity of adopting some new and less exhaustive crop. There are six Companies with a capital of £ 150,000 working the fibre. The plant can be grown either from seed or from shoots. A gravelly or laterite soil appears to be best suited to it, but any light dry soil will do, damp and water-logged places being injurious. No manure is required, and the plant grows on the most stony ground, where apparently there is not sufficient soil to support life in the plant. In some places it may even be seen growing in the clefts of rocks as on the stony slopes of the Panhala Fort and on a rocky hill near Salwan. It thrives both in the eastern as well as in the western parts of the territory. Of course, its growth is more healthy and stronger in the black soil of the eastern part than on the slopes of the Sahyadri. This important product in the territory has not yet received the attention it deserves. Only a few Mangs purchase the leaves, extract the fibre, and make it into ropes. A very large quantity of the leaves still remains unutilized in every place where the plant grows. It has never been known to be largely exported, perhaps because the large demand, the aloe fibre has in foreign countries, is not yet sufficiently known.

3. Lately a sample of the aloe fibre was sent to England along with those of many other jungle fibres referred to before. The price quoted for the ordinary fibre was £15 per ton and for well cleaned and white fibre the rate quoted was £ 22 to £ 25 per ton.

Possibilities of developing the trade in Agave fibre.

These rates though lower than those mentioned by Dr. Watt are sufficiently remunerative for the purposes of an export trade.

From inquiries made in villages where there are professional extractors of the fibre, it was found that it can be bought at a rupee and a quarter to a rupee and a half per maund of 12 seers, i. e., at this rate the price per ton is Rs. 120 to 141 and in some places in the Alte and Shirol Petas even cheaper. It will, therefore, be seen, that it is profitable to export the fibre even as it is at present extracted.

The native method of extracting the fibre is of course primitive. The leaves are cut and steeped in water. After they have rotted, they are threshed with sticks and rubbed with stones or scraped with shells or wooden blades to remove the non-fibrous portions, and finally washed and bleached in the sun. Another way not known in the territory is to cut off about 6 inches of the pointed end of the leaves, then beat and bruise them with wooden mallets on a smooth surface of stone or wood, tie them in bundles of four leaves and lay these in heaps to ferment. The beating removes much of the sap, and the fermentation helps to loosen the fibre without damaging it. When the heat has subsided, the bundles are steeped in water for about a fortnight, after which they are washed to make the fibre look clean and white. It is then dried and packed.

This latter method deserves a trial as it is now admitted that the process of rotting proves injurious to the fibre, and mechanical contrivances are used for separating the fibre from the leaves. The State has purchased one of these simple machines, with which experiments are being made at the Technical School.

In an industry in which men, women, and boys can equally take part, and are satisfied with low wages, it will be worth trying whether the extraction and washing of the fibre by hand will not be more advantageous, both commercially and industrially than doing it by machinery, till at least large plantations are available.

Agave fibre is much valued for ropes. Its length varies from 3 to 7 feet, and the breaking strain of this rope has been stated to be 270 to 370 lbs. Various trials have proved these ropes to be as strong as, if not stronger than, coir ropes, and they have also the advantage of pliability and great durability under water. Besides rope-making which is carried on in the State, the fibre can be used for certain fabrics, such as rough carpets, sack-cloth, and rough matting, while the waste from ropes and these fabrics can be utilized in paper-making. Any encouragement, therefore, that may be given to aloe cultivation will tend to develop three other industries, one of which, viz., rope-making is not thriving, and the other two, viz., sackcloth-making and paper-making are dying out. The utilization of all sterile lands, at present yielding no return, for aloe plantations, is another advantage to be taken into account in the consideration of this industry.

4. As regular cultivation of agave has never been attempted in the territory, we shall have to be guided by the experience gained in America, and in the Mauritius, the Bahama and other islands, about the method of growing the plant, what soil is best suited, and how and when leaves should be cut, and what the yield per acre is, and what investments will be necessary. It will not be

out of place, therefore, to quote what is said about its cultivation by Spon and Watt in their respective books:—

“ In Mexico 5,000 to 6,000 plants may be found on an acre. The average number of leaves is 40 per plant, each measuring 8 to 10 feet long and one foot wide, and yielding 6 to 10 per cent. by weight of the fibre. The culture of the plant is being extended in America, but not in the proportion which its value deserves.—*Spon*.

“ The agave is planted about 5 feet apart in the furrows 5 feet distant from each other, so that an acre would contain from 1,600 to 2,000 plants. When about seven or eight years old the cutting may commence, but by planting with off shoots this need be only three or four years after the opening up of the plantation. They will continue to yield for four or five years. The Superintendent of the Hazaribagh Jail, Dr. R. Cobb, furnished the following report detailing the process adopted by him in the cultivation of the fibre, which is here published in the hope that it may prove useful to the interested persons:—

‘ *Growth from seed*.—It may be grown from seed collected from the candelabra-like stems thrown up by the plant after it has reached the age of from five to seven years. The seed should be planted in the nursery in rows 18 inches apart, and the seeds 12 inches from each other. The best time to plant them (in Hazaribagh) is during the rains; they will then rarely fail to germinate, and throw out leaves three or four inches long by the end of the year. If, however, they are put down in the dry season, they require watering at least twice a week. The young plants should be allowed to remain in the nursery till the following rains, when they may be transplanted to the hedge or plantation where they are intended to grow.’

‘ *Growth from shoots*.—This is the best method, because there is no chance of failure of germination, the labour of sowing is saved and much time is gained. Young plants from one to two years old should be procured at the commencement of the rainy season, and put down where they are intended to grow permanently. If for hedge rows, a ditch should be dug, and young plants put on the tops of the earth thrown up. They should not be closer than two feet from each other. The holes in which they are placed should be eight inches in depth, and the earth should be well pressed round them. No further care is then required, and in about three or four years the plants will grow quite close together and make an excellent fence. If it is intended to make an aloe plantation, the young shoots should be planted in rows ten feet apart, and five or six feet should be allowed between each plant in the rows.’

‘ *Soil*.—A gravelly or laterite soil appears to be best suited for the growth of the aloe plant. If the plantation is made on high ground, it is not necessary to make ridges to plant on, and the plant is

'quite as prolific of young shoots, for experience has shown that they do  
'equally well in the flat; but in low situations and hollows, it is  
'necessary to make ridges twelve to eighteen inches high, the plant being very  
'partial to a light dry soil, while a damp and water-logged soil is death to  
'it. No manure is required, and it grows on the most stony ground,  
'where apparently there is no soil to support life in the plant. In some  
'places it may be seen growing in the clefts of the rocks. We have not  
'found it necessary to hoe or dig up the land near the plants, and weeds,  
'grass, &c., do not appear to interfere with its growth. From experiments  
'which have been made here, the use of the expressed juice of the leaves  
'as manure, has appeared to accelerate the growth of the plants.'

'*Cutting the leaves.*—The leaves should not be cut until the aloe is six  
'or seven years old, and then we can continue till after it has thrown up its  
'tall candelabra-like stem; some of these grow to the height of 18 to 20 feet;  
'they flower and produce seeds. Before these are thrown up, the fibre is  
'weak and not fit for manufacture.'

'*Protection of plantation.*—It is commonly supposed that cattle will  
'not eat the aloe plant on account of its sharp pointed leaf and acrid  
'sap, but our experience has shown this to be an error. Several growing  
'plants have had their leaves eaten, and very young plants have been  
'found cropped close to the ground. It is advisable, therefore, to keep off  
'cattle by means of a ditch (outside) and a close aloe hedge round the  
'plantation.'

'*Value of crop per acre.*—After the plants are seven or eight years  
'old, one acre of land may be expected to yield seven maunds of fibre per  
'annum (it requires as much as forty maunds of leaves to make one maund  
'of fibre). There is no doubt about this, as repeated experiments have  
'been made in this jail. After the ground has been planted, no expendi-  
'ture is required, and the cost of planting depends greatly on the distance  
'from which the plants have to be brought.'

'*Preparation of fibre.*—After the leaves are cut, they are put through  
'a crushing machine, invented by my jailor, Mr. Pimm, which breaks the  
'hard bark of the leaf and crushes out the juice. It has been found that  
'a great deal of manual labour is saved by this process. The machine is  
'not unlike a sugar-cane crushing machine. This process should be  
'carried on as near water as possible. Then the crushed leaves are pounded  
'on a smooth stone by a wooden mallet until all the bark and woody  
'matter are removed. The fibre is then washed until the whole sap and  
'the dirt is cleared out of it. It is dried in the sun and is then ready for  
'use.'—Watt.

There are three varieties of agave common in the territory, viz., the  
blue, the green and the light blue. Of these, the first is to be found

all over the province from Shirol to the Sahyadri. There is nothing to show that it will not thrive in any particular district or tract, though it thrives more in the Desh than in the hill top Konkan, or Ghaut Matha, and it is only on the Sahyadri itself that many of the plants are not to be seen. There are large tracts of land and many hills in the territory without any crops or vegetation; many of the latter are to be found in the eastern part, on which even grass does not grow taller than six inches, and which are simply washed away by the rains every year. Covering these with aloe plants will not only yield some return to the State, but by preventing them from being washed down, they will in course of time become suitable for some inferior crop like Ragi. At any rate experiments ought to be made with plantations of from two to five acres in different localities.

The most expensive part of the plantation is the hedge all round, and next to it is the making of ridges or furrows according to the nature of the ground and getting the seed or off shoots and planting them at the commencement of the rainy season. Supposing the seed to cost nothing, the total expense per acre will not exceed Rs. 15.

#### COFFEE CULTIVATION.

5. As mentioned elsewhere, the Bhudargad and Panhala Petas and the Vishalgad and the Bawada States occupying the whole of the territory bordering on the Sahyadri, have no industries whatever, except the small portion of the Panhala Peta converging on the Alte Peta. The whole of this district is covered with hills and forests, what little level land there is not being very fertile. The only important mineral it contains is iron which cannot be smelted for want of fuel. Since the conservancy of the forests in this portion of the territory has occupied the attention of the authorities, the rayots have been deprived of the hill lands which they formerly used for Kumri cultivation. In some parts of the State, notably in the Panhala Peta, Kumri cultivation is the rayot's only means of livelihood, and since this was denied them, their condition has become more miserable still, so much as to have made them desperate last year, when the people of about 33 villages combined together and cut down large tracts of forest for Kumri cultivation. The fruits of several years' labours of the forest department have been thus destroyed, and among them some tracts which had not been touched and specially reserved for shikar during the last hundred years at least. There can be no disputing the fact that the nature of the country within 10 or 12 miles of the Sahyadri, makes the people entirely dependent on Kumri or ash cultivation for their livelihood. In this portion of the territory land is so poor that it cannot yield any crop unless it is allowed to lie fallow for ten years and then supplied with ash manure. Moreover, the rain falls sometimes to the extent of ten or fifteen inches in a few hours, and then the seed sown, if it has not yet

Condition of the Western part and necessity of introducing coffee and other cultivations.



germinated, is often washed off, and thus requires to be sown twice or thrice over. What few flat lands are to be found in the valleys on the banks of rivers are subject to inundations that make the crops thereon most precarious. The only crops that grow are ragi, nachani, and vari, the most inferior of corns. Reckoning only an acre of land per head of population and considering that this acre is available for cultivation only once in ten years, ten times as many acres of land as there are people in this tract would be the least that would be required for cultivation. But on the other hand the forests have also to be preserved, and therefore the utmost that can be done for the people of these parts is to set apart for cultivation such hills in the vicinity of villages as may not be quite suited for forest conservancy. But many of such areas are afforested by the demarcation officer in his zeal for increasing the forest area. But even this will not be sufficient to prevent encroachments on the reserved forests, because the present undeveloped condition of the forest resources of the State can hardly provide better employment for the growing population than the collection of fuel, hirda-nuts, &c. The only semi-forest and semi-agricultural industries which can possibly be introduced on hills and valleys into this part are the cultivation of aloe, coffee, cardamoms, pepper, betel-nuts and potatoes. The first, aloe cultivation, has been previously treated by itself, and whether the industry is very paying or not, it can find employment for a large number.

Though coffee plantations require a large outlay, they make respectable returns in Southern India and Ceylon where they are very extensively made.

6. In Southern India alone, average area under mature coffee plants and the average yield during 1883, 1884 and 1885 was returned at 1,86,500 acres, and 31½ millions of pounds, respectively, distributed as follows:—

Extent of coffee cultivation in Southern India.

|                   | Acres.   | lbs.       | Yield per acre. |
|-------------------|----------|------------|-----------------|
|                   |          |            | £               |
| Mysore ... ..     | 82,100   | 7,110,000  | 86              |
| Madras ... ..     | 55,100   | 13,160,000 | 237             |
| Coorg ... ..      | 42,300   | 9,330,000  | 220             |
| Travancore ... .. | 4,800    | 820,000    | 170             |
| Cochin ... ..     | 2,200    | 830,000    | 377             |
|                   | <hr/>    | <hr/>      |                 |
| Total...          | 1,86,500 | 31,250,000 |                 |

The rise in the price of coffee has been marvellous. In 1848 a hundredweight of coffee was sold at Rs. 4½ in Ceylon and a hundredweight of Waynaad coffee fetched Rs. 17. In 1869 it was worth from Rs. 30 to 40 per cwt. In 1885 the

Price of coffee.

prices in England ranged from 80s. to 135s. per cwt., and now it sells in India at from Rs. 100 to 112 per cwt.

No statistics are available regarding the Indian inland trade in coffee.

Trade in coffee. As regards the external trade, the average imports during the five years ending 1886-87 amounted to 25,300 cwt. of the value of Rs. 6,87,000. The average exports during the same period were 352,600 cwt., valued at Rs. 138,54,000. Add to these 20,376 cwt. sent out from Travancore and Cochin, and the total quantity sent out from India during each of the above five years was something like 372,976 cwt. The United Kingdom and France are the two largest consumers of the berry. The coasting trade consisting of despatches from Madras to places within the Presidency and to Bombay averaged during these five years in quantity 70,000 cwt. of the value of 22 lacs of rupees.

The imports of coffee into the United Kingdom alone in 1878 were 1,270,000 cwt. contributed by no less than 25 different countries.

What wonder if so many countries cultivate coffee when its consumption is so large in England. It is equally large in other countries of Europe and America. The following, taken from the last official returns, shows the total consumption of coffee (in millions of lbs.) in the chief countries where it is used. The United States, 310; the German Empire, 218½; France, 120; Holland, 70; Belgium, 50; Austria Hungary, 36½; the United Kingdom, 34½; Italy, 28; Sweden, 25; Switzerland, 18; Norway, 13½; Russia, 10½; Denmark, 9.

This ever-increasing demand for coffee in foreign countries gives considerable scope for its cultivation in the Kolhapur territory, and it will not only be an additional item of revenue to the State, but will also give employment to a large number of hands especially in the hilly tracts.

7. Opinions differ about the cost of coffee cultivation and its yield.

Cost of coffee cultivation. Dr. Shortt in his useful hand-book on coffee, estimates the cost of opening 200 acres of forest-land for the cultivation of coffee, including purchase of land, tools, felling, clearing, lining, holing, planting, road-making, building planter's house and coolie lines, and keeping the same in order for three years, as follows:—

|                     |     |     |     |     | Rs.    |
|---------------------|-----|-----|-----|-----|--------|
| 1st year            | ... | ... | ... | ... | 7,160  |
| 2nd "               | ... | ... | ... | ... | 3,300  |
| 3rd "               | ... | ... | ... | ... | 4,460  |
| Instruments         | ... | ... | ... | ... | 700    |
| Buildings and roads | ... | ... | ... | ... | 1,830  |
| Total ..Rs.         |     |     |     |     | 17,450 |

This estimate allows only Rs. 125 a month for European supervision, and it is supposed that the third year makes a return. The average produce of an acre is estimated at 5 cwt. per acre. 200 acres will yield 1,000 cwt., valued at Rs. 18,000 at Rs. 7 per maund of 25 lbs. each, giving a profit of cent. per cent. After the third year the average expenses will not exceed Rs. 5,000 on a well-managed plantation, and profits will be larger.

This estimate does not include the purchase of grass and forest-land, the labour of preparing the beans, the purchase of pulping-machinery, of a pulping-house and other accessories. Allowing even 75 per cent. of the profits to be consumed by these, there will remain at least 25 per cent., which is not a bad return.

The following estimate in rupees for coffee cultivation in Southern India, quoted from Spon, is based on the purchase of 300 acres of forest-lands at Rs. 50 per acre, and 200 acres grass land at Rs. 25 per acre, bringing 200 acres of the former into bearing; labour, 4 annas a day, exclusive of maistries' wages:—

*“First year.*—Land, Rs. 20,000; tools, Rs. 350; felling and clearing, 50A. at 20, Rs. 1,000; coolie lines and bungalows, Rs. 1,203; nursery containing say one lac of plants for second year's extension, Rs. 250; roads to the estate, and on the clearing, Rs. 250; lining out 50A. at Rs. 3, Rs. 150; pitting 50A. at 5 ft. × 6 ft., say 1,452 pits per acre at 4 annas for 20 pits, Rs. 907; filling in pits, Rs. 151; plants 75,000 at Rs. 7½ per 1,000, Rs. 562; planting 50A., Rs. 90; cleaning and weeding, till 30th September, 50A. at Rs. 6, Rs. 300; Superintendent, Rs. 1,320; writer, Rs. 360; maistries, 10 per cent. on coolie labour, Rs. 417; contingencies, Rs. 500; total Rs. 27,790.

*“Second year (cultivation 50A., extension 50A.).*—Weeding, Rs. 900; filling up vacancies, Rs. 69; repairing buildings, Rs. 150; roads and trenching, Rs. 100; re-planting nursery, Rs. 133; additional lines, Rs. 350; tools, Rs. 250; felling, clearing, lining, pitting, filling, planting, cleaning up, and weeding 50A. at last year's rate, Rs. 2,599; roads and trenching, Rs. 120; Superintendent, Rs. 1,800; horse, Rs. 400; writer, Rs. 420; maistries, Rs. 403; contingencies, Rs. 500; total Rs. 8,199.

*“Third year (cultivation 100A., extension 50A.).*—Weeding, Rs. 1,800; filling up vacancies 10 per cent. on 50A., Rs. 69; and 5 per cent. on 50A., Rs. 34; repairing buildings, Rs. 225; trenching and repairing roads, Rs. 150; re-planting nursery, &c., Rs. 166; topping and handling 50A., Rs. 125; additional coolie lines, tools, and roads, as before, Rs. 720; felling, &c., 50A., as before, Rs. 2,599; pulping-house, store, and pulpers, Rs. 4,000; gathering 1,250 bushels cherry (say 125 cwt.) at 4 annas, Rs. 312; curing at 8 annas per cwt., Rs. 62; despatching to coast, at 10 annas per bushel parch-

ment, Rs. 390; superintendent, Rs. 2,620; writer, Rs. 460; maistries, Rs. 599; contingencies, Rs. 500 = total, Rs. 14,811.

"*Fourth year (cultivation 150 A., extension 50 A.)*.—Weeding, Rs. 2,700; filling up vacancies, Rs. 139; repairing buildings, Rs. 400; roads and trenching, Rs. 250; nursery, Rs. 100; topping, handling, and pruning, Rs. 425; additional coolie lines, tools, and roads, as before, Rs. 720; felling, &c., &c., 50 A., as before, Rs. 2,599; completing store and pulping-house, Rs. 2,000; gathering, 4,250 bushels cherry (say 425 cwt.), Rs. 1,062; curing, Rs. 212; despatching to coast, Rs. 1,328; superintendent, Rs. 3,120; writer, Rs. 540; maistries, Rs. 739; cattle-shed, Rs. 1,000; cattle (75 head) at rupees 30, Rs. 2,250; keepers, &c., (6 men), Rs. 432; contingencies, Rs. 500 = total Rs. 20,566.

"*Fifth year (cultivation 200 A.)*.—Weeding, Rs. 3,600; filling up vacancies, Rs. 173; repairing buildings, Rs. 500; roads and trenching, Rs. 400; nursery, Rs. 100; topping, handling, and pruning, Rs. 850; manuring, 50 A. at rupees 40, Rs. 2,000; gathering 7,250 bushels cherry (725 cwt.), Rs. 1,812; curing, Rs. 362; despatching to coast, Rs. 2,265; permanent bungalow, &c., Rs. 5,000; cattle (25 head), Rs. 750; keepers (6 men), Rs. 432; superintendent, Rs. 3,620; writer, Rs. 600; maistries, Rs. 981; contingencies, Rs. 500; = total Rs. 23,945.

"*Sixth year*.—Weeding, Rs. 3,600; filling up vacancies, Rs. 175; buildings, Rs. 500; roads and trenching, Rs. 500; nursery, Rs. 100; pruning and handling, Rs. 2,000; manuring, Rs. 2,500; gathering 10,250 bushels, Rs. 2,563; curing and despatching, Rs. 3,715; stock, Rs. 1,200; superintendent and writer, Rs. 4,220; maistries, Rs. 1,000; contingencies, Rs. 500 = total Rs. 22,573.

"*Seventh year*.—Cultivation, Rs. 9,375; gathering, 12,000 bushels cherry (1,200 cwt.), full crop, Rs. 3,000; curing and despatching, Rs. 4,350; stock, Rs. 1,200; management, Rs. 5,220; contingencies, Rs. 500 = total Rs. 23,645.

The balance sheet will then stand as under:—

|                            | Rs.    |                             | Rs.    |
|----------------------------|--------|-----------------------------|--------|
| 1st year:—To expenses ...  | 27,790 | By balance.....             | 27,790 |
|                            | <hr/>  |                             | <hr/>  |
| 2nd year:—To balance ..... | 27,790 | By balance.....             | 35,989 |
| "    " expenses ...        | 2,199  |                             |        |
|                            | <hr/>  |                             | <hr/>  |
|                            | 35,989 |                             | 35,989 |
|                            | <hr/>  |                             | <hr/>  |
| 3rd year:—To balance ..... | 35,989 | By 125 cwt. crop, at 45 Rs. | 5,625  |
| "    " expenses.....       | 14,811 | By balance .....            | 45,175 |
|                            | <hr/>  |                             | <hr/>  |
|                            | 50,800 |                             | 50,800 |
|                            | <hr/>  |                             | <hr/>  |

|                                | Rs.          |                               | Rs.                 |
|--------------------------------|--------------|-------------------------------|---------------------|
| 4th year:—To balance .....     | 45,175       | By 425 cwt. crop, at 45 Rs.   | 19,125              |
| "    "    expenses.....        | 20,566       | By balance .....              | 46,617              |
|                                | <hr/> 65,742 |                               | <hr/> 65,745        |
| 5th year:—To balance .....     | 46,617       | By 725 cwt. crop, at 45 Rs.   | 32,625              |
| "    "    expenses.....        | 23,945       | By balance.....               | 37,937              |
|                                | <hr/> 70,562 |                               | <hr/> 70,562        |
| 6th year:—To balance .....     | 37,937       | By 1,025 cwt. crop, at 45 Rs  | 46,125              |
| "    "    expenses.....        | 22,573       | By balance .....              | 74,386              |
|                                | <hr/> 60,511 |                               | <hr/> 60,511        |
| 7th year:—To balance .....     | 14,386       | By 1,200 cwt. at, 45 Rs. ...  | 54,000 <sup>0</sup> |
| "    "    expenses ...         | 23,645       |                               |                     |
| "    "    balance .....        | 15,969       |                               |                     |
|                                | <hr/> 54,000 |                               | <hr/> 54,000        |
| Subsequent years:—To expenses. | 23,645       | By 1,200 cwt. crop, at 45 Rs. | 54,000."            |

The following approximate estimates for bringing into bearing 200 acres of forest land, are quoted from Mr. Arnold's book, the latest authority on coffee plantation:—

*First year.*

(100 acres opened.)

|  | Total Rs.          |
|--|--------------------|
| "The land having been acquired, there will be, to begin with, surveyor's fees, cutting out, and clearing the first hundred acres at Rs. 3 per acre ... ..                            | 300                |
| Felling and clearing 100 acres by contract or otherwise, at Rs. 25 per acre ... ..   | 2,500              |
| Cutting pegs for lining will depend on number of pegs required according to distance the bushes are to be apart. Say we need 1,87,500, this should be about 14 annas per acre ... .. | 80                 |
| Lining, very variable work, may be taken at Rs. 3. The better the burn, the closer the land is cleared, the lighter this and all subsequent works become... ..                       | 300                |
|  | <hr/> Rs. 3,180    |
|  | Carried forward... |

|   | Total Rs.  |
|---|------------|
| Brought forward...  | ... 3,180  |
| <hr/>   |            |
| Holing should be done well, and not hurried or scamped, as we have pointed out. In round numbers, with 1,500 holes to the acre, the cost will be at least Rs. 16 per acre... ..   | ... 1,600  |
| "Filling in," &c., at Rs. 6 per acre ... ..   | ... 600    |
| Planting and supplying are works second to none in importance of those dealing directly with the bushes. Both require constant supervision and the best labour on the estate. Planting may be taken at Rs. 24 per acre, and supply, if the previous work was done well, Rs. 3; together Rs. 27 per acre ... ..  | ... 2,700  |
| Tools must not be overlooked. They should all be the best of their kind and English make. Mamoties, alavangas, axes, bill-hooks, pruning knives, water-cans, buckets, spades, &c., &c., are amongst the chief required. A careful record should be kept of all issued from the stores every day, or they will be hidden and lost with inconceivable rapidity. There is constant work for one coolie (Sundries) re-handling axes, mamoties, and perhaps for another sharpening and grinding ... .. | ... 300    |
| A nursery plot of about an acre may cost to level, clear, plant, and drain, Rs. 150. To this should be added the cost of 4 bushels of seed, coffee, Rs. 10 per bushel ... ..  | ... 190    |
| Lines must be built, and though any sort of miserable shedding is considered good enough for the first year or two, we can see no valid reason why these buildings should not be decent and efficient from the first. Ten-roomed lines—stone pillar and shingle—each room 12 by 10, and well made, as previously pointed out, can be put up for about Rs. 550 to 700, say ... ..  | ... 600    |
| A bungalow for the Englishman is often not built until the third year, the estate in the mean time being managed through a neighbouring planter, who rides over to superintend. But suppose the owner lives on the land from the first, then a very convenient, if unpretentious, house on stone foundations with shingle roof can be built for Rs. 1,000. Ourselves we should be inclined to add another thousand rupees, and make it very complete, but we accept the lower estimate ... ..     | ... 1,000  |
| <hr/>   |            |
| Carried forward...  | Rs. 10,170 |

|   | Total Rs.  |
|---|------------|
| Brought forward...  | ... 10,170 |
| <hr/>   |            |
| <i>Roads</i> deserve the earliest consideration we can give them. When made <i>at once</i> , although it may be not to their full width, they will save 5 per cent. on all subsequent operations. They are necessary but expensive luxuries, costing little under Rs. 140 per mile, and 1½ miles per hundred acres opened is not too much ... | 210        |
| <i>Draining</i> has to be seen to, and the sooner the better. Forty acres of the steepest land— <i>i. e.</i> , that in most danger of losing its soil—at Rs. 7 per acre, will be ... ..   | 280        |
| Weeding as we have seen is light for the first year. Ten runs over the clearings in that period will be sufficient, and these at Re. 1 per acre monthly will be ... ..  | 100        |
| Finally there will be the <i>salary of Superintendent</i> , Rs. 1000 (at least), to set against the estate ... ..   | 1,000      |
| <i>And contingencies.</i> These are apt to increase unduly. They may be said to include a host of items, such as Government medical assessment, taxes, "writer," if there is one, general transport, loss on rice, subscriptions, absenting coolies, &c., &c. ... ..  | 500        |
| <hr/>   |            |
| Probable expenditure to end of first year ... ..  | Rs. 12,260 |
| <hr/>   |            |

*Second year*

|   |            |
|---|------------|
| " If we now bring under cultivation the other hundred acres, felling and clearing, pegs, lining, filling in, planting and supplying, &c., as previously, if done in the <i>best</i> style, will be not much under... .. | 7,780      |
| More lines for coolies will be required, say 60 × 20 ... ..   | 700        |
| Another 1½ miles of roads ... ..  | 210        |
| Planting grass for cattle ... ..  | 300        |
| Drains again as last year... ..   | 280        |
| Tools to re-place those lost and broken .. ..   | 100        |
| Weeding : 1st clearing of 12 months, 2nd clearing for 6 months, at Re. 1 per month ... ..   | 1,800      |
| Superintendence ... ..  | 1,000      |
| Contingencies ... ..  | 500        |
| <hr/>   |            |
| Probable expenditure to end of second year ... ..   | Rs. 12,670 |
| <hr/>   |            |

## Third year.

|   | Total Rs.              |
|---|------------------------|
| " Much of the work is the same as previously.   |                        |
| <i>Weeding</i> 200 acres ... ..   | 2,400                  |
| <i>Up-keep of roads and drains</i> , at Rs. 2 ... ..  | 400                    |
| <i>Pruning</i> has now to be attended to. Suckering was probably commenced with the monthly weeding about the middle of the last twelve months, but was not heavy enough to need special mention. <i>Topping</i> took place at the same time and cost Re. 1—Rs. 200. <i>Pruning and handling</i> at Rs. 4 per acre (including the burying of the rubbish between the rows), with this will be... .. | 1,000                  |
| This year a <i>resident manager</i> will be needed on the estate. £ 200, (Rs. 2,000) is the usual commencing salary ... ..  | 2,000                  |
| <i>Pulping machinery</i> , pulping-house and stores, may, as has been shown, cost anything, from Rs. 1,800 for very temporary arrangements, to Rs. 10,000 or even more. Rs. 5,000 ought to set small estates up well, avoiding on the one hand useless display in buildings, and on the other "cutcha" arrangements, sure to end in loss and disappointment ... ..                                  | 5,000                  |
| <i>Picking, pulping, and drying</i> , say 400 cwt. of 100 acres, viz., 4 cwt. at Rs. 3, will come to ... ..   | 1,200                  |
| Transport to low lands very likely 8 annas per bushel on 1,900 bushels of "parchment" would equal ... ..  | 950                    |
| Contingencies ... ..  | 500                    |
| General transport of store, material, &c. ... ..  | 500                    |
|   | Third year Rs. 13,950  |
| Expenditure—First year ... ..   | 12,260                 |
| "    Second year ... ..   | 12,670                 |
| "    Third year... ..   | 13,950                 |
| Total expenditure to first crop ... ..  | 38,880                 |
| Less value of 400 cwt. at 70s. per cwt. ... ..  | 14,000                 |
|   | Estate Dr. Rs. 24,880" |

8. According to upon, the points which determine the value of a plot of land for coffee culture are:—(1) Elevation, (2) Aspect, (3) Shelter from wind, (4) Shelter from wash, (5) Temperature, (6.) Rainfall, (7) Proximity to a river, and (8) Character and richness of soil.

Climate and soil required.



The coffee plant will grow and reproduce itself on a level with the sea and at 2,000 feet above it. At sea level and below 2,000 feet, trees have the most luxuriant appearance, come soonest into bearing and yield the greatest quantity per acre; but the bean is light and of an inferior quality. Below this height the trees require greater care, shade is necessary for the growth of plants, and irrigation is absolutely required. The most suitable elevations for coffee plantations are at elevations between 2,000 and 4,000 feet; because the best aromatic properties are developed at these heights. The higher the sites, the better the quality. A mild climate and rarified air are highly favourable to the growth of coffee. Cool climate is very invigorating. In Arabia the best Mocha coffee is grown on mountains up to an altitude of 3,000 feet. The best Ceylon and Mysore coffee plantations are also on the mountains above 2,000 or 3,000 feet, where rain is frequent and the temperature is moderate.

Violent wind and too high a temperature are great enemies of a coffee plant. Shelter from wind is of paramount importance and cannot be sacrificed even to richer soil. The south-west monsoons have a prejudicial influence. On westerly slopes the south-west monsoons burst with such force that coffee plants cannot withstand it. Therefore northerly and easterly facings are perhaps the best as not being exposed to violent winds for any lengthened periods. But if coffee is to be planted further inland, the hotter and drier climate will compel a westerly deviation, so as to catch as much as possible the monsoon rains.

So also shelter from wash can be secured by avoiding too steep hills.

Coffee shrubs luxuriate in a temperature which ranges from 55° F. to 60° F. at night and morning, and not higher than 70° F. to 80° F. at noon. This is the average temperature of all the western hills.

The rainfall necessary for coffee is from 60 inches to 125 inches. Average rainfall of 80 to 90 inches suits coffee very well.

The best soil for coffee is of a deep chocolate colour, friable, and abounding with blocks and small pieces of stones, which in the rainy season prevent excessive washing away of the mould, and by their obstructing evaporation in the dry weather, afford refreshing coolness and moisture to the roots of the plants. The soil must contain much vegetable mould produced by the decay of vegetable matter and also ferruginous clay. Coffee thrives best when these are present either in red or black clay, but especially in the former. Perfectly flat land must be avoided, a wet and water logged soil is fatal to coffee, and a very flat land entails great expenditure for drainage. Very steep soil, on the other hand, is objectionable, on account of the wash occasioned, carrying away soil and manure, and exposing the roots of the plants. The surface soil must be fairly good though subsoil may be a little poor, but must never be stiff clay. The coffee shrub is essentially a lateral

feeder. The soil must have a depth of at least two feet, as the shrub has a long tap-root. In rocky hard soils pits require to be excavated two feet deep, to admit of the tap-root striking perpendicularly down. A virgin forest land has been found to be the most suitable to break up for coffee estates, as it has become naturally enriched by decaying vegetable matter, and the burning of felled trees frees it from insects and weeds.

9. In the Kolhapur territory the height of the Kolhapur plain above sea level is 1,800 feet, and that of the Sahyadri range, running north to south on the western boundary, and of its main spurs running east to west, varies from 2,000 to 3,500 feet. The slopes of many of them face east, north, and north-east, and are thus sheltered from the violent winds from the west and the south-west during the monsoons. By avoiding steeper slopes, shelter from wash can be easily secured.

The average mean temperature at Kolhapur is from 80° to 85° F., while that towards the west varies from 60° to 80° F. Directly on the Sahyadri, and in a zone extending over about 7 or 8 miles from it, the winter temperature at night is often below 50° F. which may not quite suit coffee. The rainfall at Kolhapur is 40 or 50 inches, and on the Sahyadri it is between 200 and 300 inches. It goes on diminishing towards the east. In the zone extending for 7 or 8 miles from the Sahyadri, the rainfall seldom falls short of 120 or 150 inches in a year. Consequently this zone will not suit coffee cultivation, on account of its excessive rainfall and low temperature, moderate heat and moderate moisture being necessary. Thus if we draw a line from Malkapur to Pendakhale on the Anaskura road, and from thence *viâ* Pombre and Asandoli to Mhasurli, and from thence *viâ* Keloshi and Kukudwadi to Waliwade on the Phonda road, and from thence *viâ* Rajapur, Waki, Kadagaum, Mhasrang to Parpoli, the tract to the east of this line, for an extent of 10 or 12 miles, will best suit coffee cultivation, as the elevation is generally 2,000 feet or more the temperature is between 60° and 80° F., and the rainfall between 80 and 120 inches.

To the east of this line, wherever we can secure slopes facing north and east with good soil and moderate supply of water, there coffee can grow. The first of such ranges is the Sonurla Parali hills. This spur begins at Vishalgad and goes by Sonurla, Parali, Pishawi, Ghungur to Panhala. On this hill there is plenty of water, especially at Pishawi on the north facing, and at Sonurla, Parali, and Ghungur on the south facing. Even on the south facing slope of this spur, there being thick green vegetation, coffee can grow as well as on the north side. This will be a capital site for coffee. Here land, flat as well as sloping, to the extent of 2 to 500 acres, will be available. There is grass land as well close by. The next range runs east and west from Injoli, Sawarde to Patpanhala, and the other from Kolik *viâ* Pombre, Kaljawade to Tamjai. On these the supply of water is scanty. But vegeta-

tion is green and the river water is available for nursery. The soil is red and deep. The north facing slopes are good.

Next to these there run three ranges north and south at right angles to the above. One runs from Salwan *viâ* Gariwde in the Bawda State to Kandalgaum near Borbet in the Panhala Peta. Though this range is to the west of the above line, on the east facing slopes of this range coffee can grow as the vegetation is thick and green, and the rainfall moderate on account of the vicinity of Borbet, one of the highest peaks in the territory. Next to this is an east facing range running from Pañore Pál, Kote, Keloshi to Talgaum near Durgmanwad. Here and there springs are to be found, vegetation is green, the soil red and deep, and the Tulai runs down below, affording good sites for nurseries. On this range jack-trees thrive best, and can be grown in all plantations which will give shade as well as fruit and timber. Another small range runs from Sangrul *viâ* Wagarbao and Donawadi to Pal. On this, there is water at two or three places where small plantations can be grown. These are the sites in the Panhala and Karvir Petas. In the Bhudargad Peta, one range runs east to west from Ramanwadi *viâ* Patpanhala, Valiwde, Farále to Panor, and from thence to Gaibi Khind where the Nipani and Phonda roads meet. On the north facing slopes of this range, some suitable sites can be found. The soil is red and deep in many places. Vegetation is thick and green. There is spring water at Patpanhala, near Valiwade in the Bahiri Bámber, originally recommended for starting the first plantation, and at Farále, which can be utilized. At all these places jack-trees thrive best.

Another range runs east to west from Rajapur *viâ* Aini, Dhamanwadi to Tikewadi and thence to Desáyáchiwadi. On half the range towards the west the soil is red, and on the eastern half it is black. There are perennial springs at Aini, Rajapur and Desáyáchiwadi which, if taken care of, can irrigate each from 40 to 50 acres of coffee, if need be in times of drought. By the side of this hill the Nipani road runs. The spring at Desáyáchiwadi is large, and close to it there is a large area of government culturable land, called Khotachêwadi, consisting of 250 acres, a portion of which has been taken into the jungle. I need not mention all the other ranges in the Bhudargad Peta, as I have described them well in my vernacular report on the subject. I may mention, however, that the ranges running *viâ* Kadgaum and the Bhudargad fort afford excellent slopes, and the villages Pal, Nawale, Dewárde, Nandoli, Delechiwale and Tirawde afford water, and flat and sloping land as well.

Coffee plants are to be seen at many places in the Bhudargad Petas. Besides those in the State-garden at Manawle near Bhudargad fort, many can be seen at Padkhamb, Vasnoli, Nawale, &c. Panalla coffee has acquired a reputation of its own. It is preferred by many Europeans and specially ordered. Coffee grown at Amba is also considered equally good. In the

Ajare Taluka several private persons have coffee-plants near their houses, and coffee to the extent of about Rs. 2,000 is annually exported. All these circumstances leave little doubt about the success of the undertaking if conducted systematically by trained men.

#### TEA CULTIVATION.

10. There are extensive tracts on and close to the Sahyadri situated to the west of the coffee line, the soil in many of which is rich and deep, and the water-supply is good. But they are exposed to excessive rain, moisture and wind, and the temperature there is often below 50° or 45° F. In this region even vegetation does not thrive as it ought to do. But I am told such tracts are very well suited for tea cultivation. This has never been tried and attempted in this region, nor have I studied that subject to say any thing with authority. I shall, however, recommend that one trained in agriculture may be sent to visit the tea plantations of Mysore, whose circumstances somewhat resemble those of our territory, and, under his supervision, trials and experiments may be made which, if successful, will enable the State to utilise a large extent of land in the vicinity of the Sahyadri range lying useless and waste on account of the excessive rain and wind prevailing there.

#### CARDAMOM.

11. Another agricultural industry, which might be profitably introduced in the western portion of the territory, is cardamom cultivation, together, with the betel-nut, long pepper, and black pepper vines. Cardamoms grow both wild and cultivated in the moist and shady mountain forests of North Canara, Cochin, Travancore, Coorg, the Wayanad, Mysore and in Canara of the Bombay Presidency. They thrive at elevations from 2,500 to 5,000 feet, where the mean annual temperature is 72° F., and the annual rainfall 121 inches. The chief requirements are a rich, loamy, and moist soil, and a site sheltered from strong winds and too much direct sunlight. The yield per acre varies from 20 to 30 seers.

Cardamoms are gradually becoming scarcer and therefore rising in price, which has more than trebled itself lately. They are sold at from Rs. 88 to Rs. 100 per maund at Cochin and Calicut, and the prices in England range from 5s. to 7½s. per lb.

The exports to foreign countries were valued in 1880-81 at Rs. 8,20,257; but the trade has latterly declined on account of the small produce. The inland trade is however large, and the cardamom is also being introduced in other countries.

It has had a successful trial on the Panhala Fort, where, though the plantation scarcely covers an acre, the yield per annum is from Rs. 150 to Rs. 300. Planting them along with betel palms and the betel and pepper vines will be more profitable still. Many of the plots of land on the plains

suggested elsewhere for coffee plantation will be useful for this purpose as well, on account of their elevation, temperature, rainfall, and presence of water. Water logged and moist soils, though not suitable for coffee, may do for cardamom and betel palms, when thoroughly drained. These plantations in the western part of the territory will not only give employment to a very large number of people, but several plots of lands which now yield no return can be utilised and will add to the revenue.

12. The Supari or betel palm (*Areca catechu*) has been also found to thrive in the territory, especially round about Kolhapur. It is extensively cultivated in Western India both below and above the Ghauts. It does not grow at any distance from the sea, and will not flourish in places above 3,000 feet in altitude. The height of the Kolhapur plain is 1,800 feet, and that of the Bhudargad and Panhala Ghautmatha between 2,200 and 3,000. The heights of all the sites suggested for coffee and cardamom cultivation on the plains being less than 2,500 feet, they are equally well suited for the betel palm. The trees can be interspersed with the cocoa palm, lime trees, jack trees and others which will give additional shade and shelter. A rich black soil containing calcareous nodules is to be preferred for the areca nut cultivation, though usually it grows in the red soil and flourishes also very well in sandy soil, that remains moist for some time after the rains.

An acre of land entirely given to betel palms will hold about 1,000 trees. The total cost of rearing 1,000 betel palms for five years, *i.e.*, until they begin to yield, is about Rs. 1,300. After 5 years a thousand trees are estimated to yield about Rs. 500 a year, from which, after deducting about Rs. 180 for watering, assessment, and wages, and about Rs. 120 as interest on Rs. 1,300 at 9 per cent. there remains a net profit of Rs. 200 or about 15 per cent. This does not take account of the produce of cardamoms and pepper grown in the same plot.

13. Miri or black pepper (*Piper Nigrum*) is a still more valuable substance to introduce into the western part. It has been tried in the Panhala gardens and found to thrive well. A large trade, internal and external, is carried on in black pepper, and the Indian article is considered far superior to what is produced in Sumatra, the Straits Settlements, Siam, and the Malay Peninsula, where it has begun to be cultivated. Its exportation has therefore considerably increased during the last 15 years, the average for the period being as follows:—

|           | lbs.         | Rs.       |
|-----------|--------------|-----------|
| 1875-1880 | ...5,420,693 | 9,77,924  |
| 1881-1885 | ...5,961,093 | 12,20,083 |
| 1885-1890 | ...7,652,334 | 28,91,805 |

In the year 1889-90, the total export amounted to 8,249,100 lbs., of which Madras exported 6,154,380 lbs., Bombay, 2,078,131, Sind, 9,244, and Bengal, 7,345 lbs.

The average exports from other countries during the same fifteen years show a decrease:—

|                  | lbs.      | Rs.       |
|------------------|-----------|-----------|
| 1875-1880 ... .. | 7,822,176 | 13,81,545 |
| 1880-1885 ... .. | 4,705,934 | 11,03,452 |
| 1885-1890 ... .. | 2,816,798 | 10,43,673 |

The total imports of this spice in the United Kingdom alone amounted in 1880, to 21,179,059 lbs. worth £ 3,98,087, while in 1871 they amounted to 28,643,635 lbs.

These figures show how great the trade in this commodity is.

14. Pimpli or long pepper (*Piper Longum*), which is also cultivated at Panhala, more as a curiosity than otherwise, in the hedges of the coffee gardens, is an article which fetches a good price in Bombay, both its fruit and roots being valued. Its cultivation on a scientific basis will not be unremunerative, as the fruit fetches Rs. 9, and the roots Rs. 7 to 7½ per maund of 41 lbs. in Bombay. An acre of land can hold about 1,700 plants; about 200 of these are said to produce 2 maunds of pepper the first year, four in the second, and six maunds in the third, after which the plant becomes annually less and less productive. The roots are then grubbed up, dried, and sold.

#### CULINARY VEGETABLES.

15. Towards the Sahyadri, in the valleys of the Bhogawati, the Tulsi, and all other rivers, there are large plots of ground on their banks which are suitable for growing culinary vegetables, English peas, and potatoes. Being subject to inundation, many of these plots are not available for cultivation during the rains, but, during the rest of the year, are admirably suited for growing vegetables, English or Indian, without much expenditure, if the experiments now being made for utilising wind-power for raising water, turn out successful. Potatoes can then be grown in large quantities as a winter crop by irrigation, and by themselves will form a well-paying item, as they can be conveyed to long distances without deteriorating. They have been found to thrive best on the Sahyadri and its vicinity. Very good cabbages and turnips have been grown at Amba, Bawda, and Malkapur. In the absence of wind-power, simple Persian wheels and *Motas* might be used to raise water. This will engage a number of Rayots who are always without work after the rains. The Rayot himself will not take to this innovation, till the State steps in and shows that it can be done with profit.

16. I do not advocate all these plantations at once. A beginning might be made by starting composite plantations consisting of coffee, areca, cardamom, pepper, long pepper, and aloa at four or five centres, say, one at Kolhapur, two or three in the Panhala Peta, at Panhala, Parali, Sonurle and at Kolik or Manwad, and as many in the Bhudargad Peta, at Manawale, Nawale and Walawade. There are already State-gardens at four of these places, viz., Kolhapur, Panhala, Parali and Manawale. These State-gardens will only require to be more scientifically conducted, and only three more new plantations for experimental purposes will be necessary. If these succeed, new ones might be taken in hand, and the feudatory chiefs encouraged to start some in their own States. The success of these experiments will induce the people to start them on their own account, like coffee and cardamom, for instance, which since their cultivation at Panhala, have found their way into many private gardens. By the way, I may be allowed to remark that the present system of having such plantations supervised by the Revenue officers is not calculated to yield such satisfactory results as when looked after by men versed both in the theory and practice of agriculture. This can best be done under the supervision of the Trade and Agriculture Department when organized as proposed further on.

## CHAPTER VIII.

## COMMUNICATION, TRADE, AND GENERAL RESULTS.

As facilities of transit form an important element in the commercial success of the trades and industries of a district, a consideration of the means for internal and external communication in the province will not be out of place in this report. The territory considered as a whole, is sufficiently well provided in this respect by the three trunk roads leading over the Ghauts to the sea-coast, and the road connecting the capital with Satara, and Belgaum, and, above all, the recently constructed Railway line, bringing it into communication with the railway system of the whole country. The outlying portions of Katkol and Rayabag are also internally well provided. Among places requiring connections may be mentioned Shirol, which might be joined to Nasalampoor by a road from Ghosarwad *viâ* Datwad and Danwad.

In the Alte Peta, the three large manufacturing places of Pattan Kodoli, Hupri, and Rendal require to be connected. This might be done by a road branching off from Gokul-Shirgaum to Pattankodoli, and thence, *viâ* Hupri and Rendal, to Yelgud. In the Karwir Peta, Tikpuri is a large market town, where more than four thousand people collect at the weekly market. It might, therefore, be connected with Parita on the Kolhapur Phonda road, a distance of only two miles, and also Shalewadi on the Kolhapur-Gargoti road, only a mile distant from it. Dhamud and Sangrul are other large market towns in the Karwir Peta which require to be joined, the former with the Kolhapur-Phonda road, and the latter with the Kolhapur-Bowda road, the respective distances from these being only four and two miles.

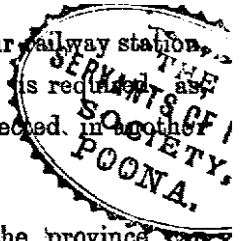
In the Gadinglaj Peta, though Kapshi is connected with a good road branching off from the Nipani-Phonda trunk, it is desirable to connect it with the Amboli road at Gadinglaj either *viâ* Bahirewadi, or *viâ* Bahirewadi and Uttur, two large manufacturing and trade centres in the Ajara Taluka of the Ichalkaranji State, at Masewadi. When this is done, it will divert the traffic to the Amboli Ghaut from Nipani, the distance being shortened by about 10 miles. Halkarni, another large manufacturing and trade centre, which is being connected with the Amboli road *viâ* Hitni, requires also to be joined to the Belgaum road near Venkanmurdi, a distance of only



three miles. The Kagal State has no roads of its own, except a small branch to Murgud. A road connecting Kagal with Chikhali, and the latter with the Nipani-Phonda road, in all a distance of about 6 miles, is necessary. This will open the little State to the Amboli Pass, as well as to the Phonda Pass by a much shorter route. In the Panhala Peta, Kodoli, which is the largest manufacturing and trading place in the whole Taluka, and is being connected with Wadgaum, requires also to be joined to the Kolhapur Amba road *via* Male and Borpádale. When the pack-bullock track which runs at present from Rashiwade to the Bawda pass *via* Borbeit hill, is converted into a fair-weather cart-road, it will serve for conveying the jungle produce to Kolhapur or to the other trunk roads of all the divisions of the State. The Bhudargad Peta is the worst in point of communication. Though the Kolhapur-Phonda and the Nipani Phonda roads run through it, they are virtually useless for the conveyance of its produce, being unconnected with the main portion of it. The two fair-weather cart-roads lately built in the north-western portion of the Peta, have somewhat improved matters; but the south-western portion, which is an important rice-producing tract, and will also afford useful sites for coffee and cardamom plantations, if they are ever undertaken, is badly in want of means of communication. There are two ways of opening out this tract to the sea-coast: one, by building the Gargoti-Patgaum cart-track into a *pacca* road to the Hanananta Pass, if the Sawantwadi State undertakes to build the latter; and the other, and by far the cheaper, by extending the Kolhapur-Gargoti road to join the Ajare-Amboli road somewhere near Suleran, a distance of about 15 miles. This will involve the crossing of a large spur of the Sahyadri, but it will attract all the traffic from Kolhapur to the Amboli pass, the distance being considerably smaller than now, and also open Bhudargad to Belgaum and the port of Vengurla.

Turning to the two outlying groups of the Basapur and Pattankud villages in the Gadinglaj Peta, Shirgaum, which is an important dying centre in the latter, requires to be connected with Iohalkaranji, which is the largest weaving centre in the territory, either in a straight line, or better still *via* Rendal. The only difficulty about this project is that the tract between Shirgaum and Iohalkaranji or Rendal is all British territory, but it will be worth sharing the cost of the portion of road in the British territory, as it will connect the latter with Chicodi and Gokak in the British district, and also afford a shorter route for taking to the railway the cotton and tobacco which grow in this group.

The Basapur group is easily accessible from Pacchhapur railway station, a small road from the station to Basapur being all that is required, as by the efforts of the Desai of Wantmuri, it is being connected in another direction with the Belgaum road.



2. Observations on the internal and external trade of the province can

only be based on information about the production, consumption, exports, and imports of the territory. The first of these, *viz.*, production can now be somewhat accurately known, and a scheme for collecting statistics about the remaining three—local consumption, exports, and imports, is under consideration. All the rail-borne trade of the Province being registered by the Railway Company in the usual course, it is only necessary to arrange for a registration of the external road-borne trade of the province. Till this is done, the progress of industrial development must be necessarily slow, as, in the absence of definite information about the industrial products imported into the territory, it will not be easy to judge which of them can be locally produced with advantage. The scheme above referred to will entail some expenditure on account of some portions of the territory being mixed up with British districts on the eastern side, but the money required will not be ill spent.

3. The production of industrial products being small, the people of the

Agricultural production and exports. territory have to depend very largely for their supply on other countries and provinces.

The quantity of the imports by rail is considerable, as will be seen from the table given further on; that by cart traffic must be much larger still. What are the agricultural, forest, and mineral products exported in return for these? The export of minerals is nil. The forest exports consist only of Hirda worth about a lakh of rupees, most of the timber required for buildings being imported.

The following table shows the probable production and export of the principal agricultural products as given in the annual reports for the last five years :—

| No. |                        | 1889-90.            |                  | 1890-91.            |                  | 1891-92.            |                  | 1892-93.            |                  | 1893-94.            |                  | Rate per maunds of 82 lbs. | Total value of the exports of 1893-94. |
|-----|------------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|----------------------------|--|
|     |                        | Production. Maunds. | Exports. Maunds. | Production. Maunds. | Exports. Maunds. | Production. Maunds. | Exports. Maunds. | Production. Maunds. | Exports. Maunds. | Production. Maunds. | Exports. Maunds. |                            |  |
|     | <i>Food-stuffs.</i>    |                     |                  |                     |                  |                     |                  |                     |                  |                     |                  | Rs.                        | Rs.                                    |
| 1   | Rice ...               | 1,256,597           | 153,153          | 759,172             | 127,818          | 536,699             | 86,703           | 597,766             | 108,187          | 626,353             | 158,375          | 2-0                        | 316,750                                |
| 2   | Jowari ...             | 528,115             | 47,766           | 606,051             | 41,504           | 498,293             | 26,028           | 451,819             | 30,017           | 587,107             | 92,451           | 2-8                        | 281,127½                               |
| 3   | Bajri ...              | 70,549              | 7,070            | 72,455              | ...              | 49,154              | 40               | 59,928              | 8,045            | 542,319             | 142,873          | 2-0                        | 286,746                                |
| 4   | Wheat ...              | 34,528              | 5,534            | 24,006              | 3,040            | 12,850              | 693              | 21,512              | 4,283            | 25,238              | 8,405            | 3-8                        | 29,417½                                |
| 5   | Nagali ...             | 236,787             | 1,603            | 260,997             | 1,583            | 217,627             | 11,764           | 247,738             | 22,398           | 259,749             | 26,551           | 1-12                       | 46,464½                                |
| 6   | Tur ...                | 53,785              | 2,666            | 54,927              | 3,861            | 39,956              | 2,105            | 55,097              | 4,881            | 54,814              | 8,886            | 2-8                        | 22,315-                                |
| 7   | Peas ...               | 86,138              | 2,038            | 88,446              | 4,080            | 16,455              | 2,719            | 31,956              | 7,296            | 38,501              | 10,910           | 2-8                        | 27,275                                 |
| 8   | Gram ...               | 53,295              | 5,115            | 51,366              | 1,303            | 33,851              | 746              | 40,677              | 7,287            | 53,397              | 18,733           | 2-12                       | 51,515½                                |
| 9   | Jaggery ...            | 495,866             | 361,117          | 433,270             | 323,014          | 322,316             | 236,375          | 352,731             | 260,889          | 642,890             | 529,365          | 5-8                        | 2,911,617½                             |
|     | <i>Spices.</i>         |                     |                  |                     |                  |                     |                  |                     |                  |                     |                  |                            |  |
| 10  | Chillies ...           | 61,969              | 31,234           | 61,995              | 15,544           | 61,646              | 14,808           | 47,240              | 12,648           | 57,833              | 22,368           | 5-0                        | 111,340                                |
| 11  | Turmeric ...           | 18,521              | 15,947           | 19,117              | 14,270           | 14,585              | 10,691           | 16,237              | 13,591           | 16,053              | 12,332           | 9-0                        | 110,988                                |
| 12  | Coriander...           | 10,302              | 6,742            | 12,616              | 7,127            | 8,469               | 4,500            | 7,611               | 5,855            | 8,943               | 6,367            | 2-0                        | 12,734                                 |
|     | <i>Oil-seeds.</i>      |                     |                  |                     |                  |                     |                  |                     |                  |                     |                  |                            |  |
| 13  | Ground-out ...         | 238,059             | 135,961          | 358,758             | 177,505          | 193,370             | 90,842           | 290,184             | 174,056          | 343,471             | 230,135          | 1-0                        | 230,135                                |
|     | <i>Fibres.</i>         |                     |                  |                     |                  |                     |                  |                     |                  |                     |                  |                            |  |
| 14  | Cotton ...             | 61,488              | 45,344           | 61,085              | 41,560           | 34,689              | 25,626           | 37,645              | 25,502           | 47,850              | 32,511           | 13-0                       | 422,643                                |
| 15  | Hemp ...               | 18,833              | 12,884           | 15,831              | 8,351            | 12,001              | 3,405            | 11,378              | 4,040            | 13,096              | 5,457            | 7-0                        | 83,199                                 |
|     | <i>Narcotics.</i>      |                     |                  |                     |                  |                     |                  |                     |                  |                     |                  |                            |  |
| 16  | Tobacco ...            | 36,685              | 26,433           | 48,756              | 27,130           | 35,493              | 24,344           | 46,686              | 30,081           | 53,821              | 40,978           | 2-12                       | 112,689½                               |
|     | <b>Total...</b>        | <b>3,281,517</b>    | <b>860,552</b>   | <b>2,866,748</b>    | <b>791,640</b>   | <b>2,077,353</b>    | <b>541,395</b>   | <b>2,316,205</b>    | <b>719,956</b>   | <b>3,375,235</b>    | <b>1,346,717</b> |                            | <b>4,961,357½</b>                      |
|     | <b>Consumption ...</b> | <b>2,400,966</b>    |                  | <b>2,075,108</b>    |                  | <b>1,535,958</b>    |                  | <b>1,596,249</b>    |                  | <b>2,028,518</b>    |                  |                            |  |

Statement giving the acreage under different crops and the probable production in 1893-94, with its value at current prices.

| No. |            | 1889-90. |     | 1890-91. |     | 1891-92. |    | 1892-93. |    | 1893-94. |    | Out-turn<br>per acre in<br>maunds<br>of 82 lbs. | Probable<br>yield in<br>maunds<br>in 1893-94. | Price Per<br>maund<br>of 82 lbs. | Total price. |
|-----|------------|----------|-----|----------|-----|----------|----|----------|----|----------|----|---|---|----------------------------------|--------------|
| 1   | Rice ...   | 163,194  | 7   | 158,003  | 5   | 150,994  | 6  | 157,630  | 16 | 159,010  | 23 | 12½   | 19,87,682                                     | 2-0                              | 39,75,264    |
| 2   | Wheat ...  | 14,985   | 18  | 15,141   | 19  | 9,367    | 12 | 11,239   | 25 | 12,953   | 2  | 0   | 77,718  | 3-8                              | 2,72,018     |
| 3   | Jowari ..  | 264,421  | 4   | 276,742  | 12  | 293,140  | 12 | 308,552  | 39 | 2,81,018 | 6  | 14  | 89,84,254                                     | 2-8                              | 98,35,635    |
| 4   | Bajri ...  | 56,460   | 22  | 63,581   | 25  | 66,508   | 9  | 57,146   | 18 | 61,012   | 7  | 10  | 610,122                                       | 2-0                              | 12,30,244    |
| 5   | Gram ...   | 29,371   | 39  | 28,874   | 35  | 25,409   | 30 | 25,161   | 6  | 27,376   | 8  | 8   | 219,009½                                      | 2-12                             | 6,02,276     |
| 6   | Ragi ...   | 114,879  | 14  | 119,093  | 29  | 122,554  | 18 | 116,859  | 27 | 117,698  | 21 | 8   | 940,788                                       | 2-0                              | 18,81,576    |
| 7   | Rala ...   | 30,196   | 1   | 36,775   | 27  | 33,286   | 5  | 37,823   | 31 | 35,201   | 34 | 8   | 281,615                                       | 2-0                              | 5,68,230     |
| 8   | Maize ...  | 5,876    | 20  | 5,956    | 31  | 5,977    | 14 | 6,729    | 23 | 7,333    | 6  | 12  | 87,998  | 2-8                              | 2,19,995     |
| 9   | Horse gram | 7,028    | 30  | 6,778    | 25  | 8,369    | 22 | 7,266    | 14 | 6,441    | 26 | 5   | 32,208½                                       | 2-8                              | 80,521       |
| 10  | Sawa ...   | 43,567   | 6   | 42,057   | 34  | 43,144   | 7  | 48,981   | 19 | 48,425   | 15 | 6   | 280,552                                       | 2-0                              | 5,21,104     |
| 11  | Tur ...    | 32,441   | 31  | 33,528   | ... | 33,663   | 1  | 36,997   | 35 | 34,693   | 34 | 4½  | 156,122                                       | 2-8                              | 8,90,305     |
| 12  | Pea ...    | 9,198    | 18  | 20,705   | 11  | 10,698   | 29 | 18,076   | 10 | 21,530   | 27 | 3½  | 75,357  | 2-8                              | 1,88,392½    |
| 13  | Masur ...  | 7,902    | 32  | 8,554    | 31  | 4,295    | 22 | 7,134    | 25 | 7,583    | 31 | 3   | 22,751½                                       | 2-8                              | 56,878       |
| 14  | Udid ...   | 6,395    | 26  | 6,008    | 19  | 5,862    | 15 | 6,641    | 1  | 6,246    | 27 | 3½  | 23,425  | 2-4                              | 52,706       |
| 15  | Mug ...    | 3,212    | 6   | 2,529    | 14  | 2,220    | 18 | 3,317    | 39 | 2,038    | 5  | 3½  | 7,643   | 2-12                             | 21,015       |
| 16  | Barag ...  | 1,120    | ... | 1,988    | 8   | 2,057    | 30 | 1,844    | 31 | 2,714    | 13 | 5   | 13,571½                                       | 1-8                              | 20,357       |
| 17  | Barley ... | 3,873    | 17  | 3,875    | 18  | 3,001    | 11 | 2,856    | 30 | 2,654    | 26 | 4   | 10,618½                                       | 3-0                              | 31,855       |
| 18  | Matke ...  | 1,322    | 32  | 1,519    | 19  | 1,510    | 23 | 1,704    | 36 | 1,562    | 38 | 3   | 4,689   | 2-8                              | 11,722       |

The value of the exports for 1893-94, estimated at the current prices, amounts to only Rs. 49,61,357, and the quantities consumed appear to be much below the mark. The productions given in the table do not correspond with the acreage given in the same reports. In order to arrive at more approximate figures, the acreage under different crops, for the last five years, as given in the same reports, is given in the following table, together with the production or probable yield, estimated by taking the outturn per acre, as given in the Kolhapur Gazetteer, and their value at the published current prices, for the year 1893-94:—

Statement giving the acreage under different crops and the probable production in 1898-94, with its value at current prices—contd.

| No. |                     | 1899-00. |    | 1890-91. |     | 1891-92. |     | 1892-93. |     | 1893-94. |    | Out-turn per<br>acre in<br>maunds of<br>82 lbs. | Probable<br>yield in<br>maunds in<br>1893-94. | Price per<br>maunds of<br>82 lbs. | Total price. |
|-----|---------------------|----------|----|----------|-----|----------|-----|----------|-----|----------|----|---|---|-----------------------------------|--------------|
| 19  | Pawta ...           | 8,178    | 85 | 8,187    | 28  | 8,308    | 26  | 8,718    | 87  | 8,012    | 8  | 8   | 9,036   | 2-4                               | 20,331       |
| 20  | Wari ...            | 88,675   | 1  | 88,842   | 34  | 83,210   | 1   | 6,854    | 12  | 38,603   | 27 | 8½  | 28,131  | 2-0                               | 6,56,282     |
| 21  | Ghoti ...           | 4,783    | 28 | 4,872    | 28  | 5,728    | 89  | 32,883   | 2   | 6,286    | 81 | 4   | 25,067  | 1-8                               | 37,600       |
| 22  | Kodra ...           | 22,037   | 28 | 22,036   | 28  | 22,043   | 28  | 21,911   | 80  | 22,144   | 28 | 4   | 88,578  | 1-4                               | 1,10,722     |
| 23  | Chawali ...         | 465      | 18 | .....    | ... | 250      | ... | 617      | 14  | 914      | 21 | 8   | 2,743½  | 2-8                               | 6,859        |
| 24  | Chillies ...        | 16,480   | 19 | 15,871   | 6   | 15,800   | 1   | 16,481   | 80  | 16,408   | 8  | 2½  | 41,015  | 5-0                               | 2,05,076     |
| 25  | Coriander ...       | 3,467    | 36 | 8,798    | 20  | 2,986    | 17  | 2,602    | 10  | 2,160    | 36 | 16  | 50,414  | 2-0                               | 1,00,828     |
| 26  | Turmeric ...        | 2,448    | 2  | 2,898    | 37  | 2,452    | 28  | 2,896    | 11  | 2,590    | 21 | 9   | 23,868½                                       | 9-0                               | 2,10,317     |
| 27  | Sugar-cane ...      | 16,308   | 19 | 16,364   | 21  | 16,011   | 10  | 16,877   | 28  | 20,867   | 4  | Rs. 225   | 939,024                                       | 5-0                               | 46,95,120    |
| 28  | Vegetables ...      | 2,742    | 31 | 1,776    | 87  | 2,602    | 82  | 2,020    | 86  | 2,518    | 26 | " 4   | 10,074  | 1-8                               | 15,111       |
| 29  | Miscellaneous ...   | 2,925    | 20 | 18,674   | 20  | 3,986    | 32  | 12,143   | 17  | 14,977   | 26 | 8   | 44,993  | 1-8                               | 67,400       |
|     |                     |          |    |          |     |          |     |          |     |          |    | Total ...                                       | 10,808,457                                    |                                   | 280,70,818   |
| 30  | Ground-nut ...      | 48,462   | 18 | 50,549   | 87  | 49,893   | 14  | 52,957   | 28  | 60,097   | 11 | 23  | 1,382,231                                     | 1-0                               | 18,82,231    |
| 31  | Safflower seed ...  | 7,356    | 15 | 6,188    | 8   | 4,882    | 27  | 7,319    | 9   | 8,795    | 2  | 7½  | 65,962½                                       | 1-8                               | 98,944       |
| 32  | Castor-oil seed ... | 2,309    | 19 | 2,688    | 16  | 2,517    | 19  | 8,792    | ... | 3,208    | 29 | 6½  | 20,857  | 2-0                               | 41,714       |
| 33  | Til or korta ...    | 13,973   | 86 | 17,405   | 34  | 15,318   | 4   | 18,474   | 2   | 18,844   | 27 | 3½  | 68,792½                                       | 8-0                               | 2,06,877     |
| 34  | Cotton ...          | 27,951   | 24 | 25,776   | 18  | 17,820   | 35  | 19,380   | 29  | 80,797   | 82 | 2½  | 76,994½                                       | 13                                | 10,00,939    |
| 35  | Tobacco ...         | 10,403   | 21 | 14,140   | 15  | 10,125   | 6   | 10,897   | 13  | 13,364   | 36 | 4½  | 56,300  | 2-12                              | 1,56,200     |
| 36  | Tag or hemp ...     | 10,187   | 4  | 5,747    | 10  | 5,493    | 32  | 5,285    | 18  | 5,207    | 26 | 1½  | 11,067  | 7-0                               | 77,469       |
|     |                     |          |    |          |     |          |     |          |     |          |    | Total oil seeds, &c.,                           | 1,882,704½                                    |                                   | 29,68,864    |
|     |                     |          |    |          |     |          |     |          |     |          |    | Grand Total.....                                | 11,991,161                                    |                                   | 390,34,677   |

The total production of food stuffs, spices, vegetables, &c., including gul or jaggery, is thus 10,308,457 maunds, valued at Rs. 2,60,70,813 and that of oil seeds, fibres, tobacco, &c., 1,682,706 maunds, valued at Rs. 29,63,864.

Seven maunds of grain, from 10 to 12 lbs of sugar and gul, and 8 lbs. of spices, or a total of about  $7\frac{1}{2}$  maunds, is the standard of consumption per head fixed by Government. Taking  $7\frac{1}{2}$  maunds as the average rate of consumption of all food stuffs per head of population, the total quantity of food supply required for 913,131, the population of the territory, is 6,848,482 $\frac{1}{2}$  maunds, leaving a balance of 3,459,975 maunds, valued at Rs. 6,919,950 at the average rate of Rs. 2 per maund, available for export.

Assuming all the tobacco and cotton, and 33 per cent. of oil seeds and fibre grown in the territory, to be consumed locally, there is left a balance of 1,032,603 maunds, of the value of Rs. 25,81,520, at the average rate of Rs.  $2\frac{1}{2}$  per maund, available for export. Thus the total annual exports of all agricultural products from the territory may thus approximately be stated to be worth Rs. 95,01,470.

4. The following table gives the imports and exports by rail during the year 1893:—

*STATEMENT showing the Exports from, and Imports into, the limits of the Kolhapur Territory by Rail during the year 1893:—*

| No.                                | Names of articles.      | Exports.<br>Maunds. | Imports.<br>Maunds. |
|------------------------------------|-------------------------|---------------------|---------------------|
| <b>FOOD STUFFS AND PROVISIONS.</b> |                         |                     |                     |
| 1                                  | Rice, unhusked ... ..   | 88                  | 1,755               |
| 2                                  | „ not in husk ... ..    | 2,233               | 40,363              |
| 3                                  | Wheat ... ..            | 251                 | 20,055              |
| 4                                  | Jowari and Bajri ... .. | 4,487               | 2,66,197            |
| 5                                  | Gram and pulse ... ..   | 10,927              | 16,526              |
| 6                                  | Other corns ... ..      | 1,281               | 5,706               |
| 7                                  | Sugar ... ..            | 2,056               | 6,388               |
| 8                                  | Jaggery ... ..          | 16,913              | 173                 |
| 9                                  | Ghee ... ..             | 4,689               | 5                   |
| 10                                 | Dried fruits ... ..     | 713                 | 19,523              |
| 11                                 | Others ... ..           | 1,463               | 5,213               |
| 12                                 | Salt... ..              | 2                   | 6,014               |
| <b>SPICES.</b>                     |                         |                     |                     |
| 13                                 | Turmeric ... ..         | 31                  | 83                  |
| 14                                 | Betel nut ... ..        | 75                  | 507                 |
| 15                                 | Pepper ... ..           | ...                 | 39                  |
| 16                                 | Ginger (dry) ... ..     | ...                 | 88                  |
| 17                                 | Chillies ... ..         | 5,842               | 250                 |
| 18                                 | Cardamoms ... ..        | 1                   | 2                   |
| 19                                 | Miscellaneous ... ..    | 487                 | 2,698               |
| Carried forward ...                |                         | 52,139              | 391,585             |

| No.                         | Names of articles.              | Exports.<br>Maunds. | Imports.<br>Maunds. |
|-----------------------------|---------------------------------|---------------------|---------------------|
|                             | Brought over ..                 | 52,139              | 391,585             |
| <b>OIL AND OIL SEEDS.</b>   |                                 |                     |                     |
| 20                          | Kerosine oil ... ..             | 1                   | 7,293               |
| 21                          | Castor-oil ... ..               | 27                  | ...                 |
| 22                          | Cocoanut oil ... ..             | 10                  | 727                 |
| 23                          | Other oils ... ..               | 1,228               | 466                 |
| 24                          | Rape and Mustard ... ..         | ...                 | 224                 |
| 25                          | Til or Jingilli ... ..          | ...                 | 40                  |
| 26                          | Groundnut ... ..                | 1,938               | 28                  |
| 27                          | Poppy ... ..                    | ...                 | 72                  |
| 28                          | Castor seeds ... ..             | 2,518               | 3                   |
| 29                          | Other oil seeds ... ..          | 49,905              | 10,456              |
| <b>FIBRES AND GOODS.</b>    |                                 |                     |                     |
| 30                          | Tag and Ambada ... ..           | 56                  | 30                  |
| 31                          | Gunny bag and cloth .. ..       | 3,433               | 1,925               |
| 32                          | Cotton, raw ... ..              | 9,610               | 312                 |
| 33                          | Twist and yarn, European ... .. | 29                  | 5,392               |
| 34                          | "    Indian ... ..              | 104                 | 2,471               |
| 35                          | Piece-goods, European ... ..    | 10                  | 6,640               |
| 36                          | "    Indian ... ..              | 185                 | 2,307               |
| 37                          | Silk, raw, foreign ... ..       | ...                 | 312                 |
| 38                          | "    Indian ... ..              | ...                 | ...                 |
| 39                          | "    piece-goods, Indian... ..  | ...                 | 31                  |
| 40                          | Wool, raw ... ..                | ...                 | 201                 |
| 41                          | Woolen goods, Indian... ..      | 6                   | 7                   |
| <b>DRUGS AND CHEMICALS.</b> |                                 |                     |                     |
| 42                          | Intoxicating drugs... ..        | ...                 | 39                  |
| 43                          | Non-intoxicating drugs ... ..   | 113                 | 96                  |
| <b>DYES AND TANS.</b>       |                                 |                     |                     |
| 44                          | Hindas... ..                    | 288                 | 231                 |
| <b>HIDES AND SKINS.</b>     |                                 |                     |                     |
| 45                          | Dressed hides of cattle ... ..  | 13                  | 4                   |
| 46                          | Raw hides of cattle ... ..      | 8                   | 1,038               |
| 47                          | Tanned skins of sheep ... ..    | 54                  | ...                 |
| 48                          | Raw skins of " ... ..           | 2,711               | 355                 |
| 49                          | Horns ... ..                    | 760                 | 31                  |
| 50                          | Leather, manufactured ... ..    | 648                 | 28                  |
| <b>LIQUORS.</b>             |                                 |                     |                     |
| 51                          | Beer ... ..                     | ...                 | 94                  |
| 52                          | Spirits... ..                   | 392                 | 819                 |
| 53                          | Wines... ..                     | 72                  | 134                 |
|                             | Carried forward ...             | 126,258             | 433,374             |

| No. | Names of articles.                    | Exports.<br>Maunds. | Imports.<br>Maunds. |
|-----|---------------------------------------|---------------------|---------------------|
|     | Brought over ...                      | 126,258             | 433,374             |
|     | NARCOTICS.                            |                     |                     |
| 54  | Tobacco, raw .. .. .                  | 10,504              | 4                   |
| 55  | „ prepared .. .. .                    | ...                 | 1                   |
| 56  | Opium .. .. .                         | ...                 | 3                   |
|     | METALS.                               |                     |                     |
| 57  | Copper sheets .. .. .                 | ...                 | 3                   |
| 58  | Brass sheets .. .. .                  | ...                 | 22                  |
| 59  | Copper pots .. .. .                   | 199                 | 853                 |
| 60  | Brass pots .. .. .                    | 540                 | 2,322               |
| 61  | Iron .. .. .                          | 213                 | 17,585              |
| 62  | Other Metals... .. .                  | 94                  | 2,059               |
|     | MISCELLANEOUS.                        |                     |                     |
| 63  | Paper ... .. .                        | ...                 | 372                 |
| 64  | Saltpetre .. .. .                     | ...                 | 151                 |
| 65  | Other salts .. .. .                   | ...                 | 27                  |
| 66  | Lime and stone .. .. .                | 572                 | 1,923               |
| 67  | Coal... .. .                          | ...                 | 108                 |
| 68  | Shell ... .. .                        | ...                 | 1                   |
| 69  | Indian Tea .. .. .                    | ...                 | 12                  |
| 70  | Timber .. .. .                        | 1,904               | 43,868              |
| 71  | Other Articles of Merchandise .. .. . | 11,680              | 17,452              |
|     | Total...                              | 151,964             | 520,140             |

5. The following are the chief centres of trade in the territory :—

Trade centres.

- Karwir *Peta*. = *Kolhapur City*, Sangrul, Tikpurli, and Dhamud.  
 Panhala „ = Sarud, Kodoli, and Bajarbhogaum.  
 Alte „ = *Wadgaum*, and the fair at *Pattankodoli*.  
 Shirol „ = *Chinchati*.  
 Gadinglaj „ = *Gadinglaj*, and Katkol.  
 Bhudargad „ = *Shenagaum*, Sarawde, and Walwe.  
 Vishalgad „ = *Malkapur*.  
 Kagal „ = *Murgud*.  
 Ichalkarnji „ = *Ichalkarnji*, Uttur, and Ajare.

Of these, those in Italics are the most important. At all of them large weekly markets are held, and pretty large transactions effected. Wadgaum, with a population of more than 5,554, takes the first place. Its weekly market, held on Thursday, is attended by ten to twelve thousand people from outside, who do not, as in other places, visit the place merely to sell their surplus produce and buy provisions and other articles of necessity, but many of them bring large quantities of commodities for sale and export.



There are many respectable shops permanently located in the place, and many large dealers who carry on an extensive export and import trade.

Next to Wadgaum, comes the city of Kolhapur, with a population of 45,603, which owes its importance to its size, the number of its well-to-do residents and dealers, and to its being the Capital of the province. A large weekly market is held in the place every Sunday, which is attended by more than 5,000 people from outside.

Ichalkaraji, with a population of 11,791, is the next in importance. Its weekly market is held on two consecutive days and attended by more than 5,000 people. The absence of a large market within a radius of 10 miles, and its vicinity to several large and flourishing places like Nandani, Lat, Rangoli, &c., combine to endow it with an extensive trade. Next to Ichalkaraji, Gadinglaj has developed into a large trading town, though it has no industries except oil pressing. Its weekly market, held on Sunday, is attended by 5 to 6,000 people, and large transactions are effected. Being connected with the Amboli Pass, it carries on a large trade in grain and oil with the seaport town of Vengurla.

At Murgud in the Kagal State, rice is the chief commodity of export, there being no less than 250 houses dealing in it. Its weekly market is attended by 8 to 9,000 people from outside. Ajare is next to Murgud in the trade of rice, chiefly of a superior variety. Its weekly market is also respectable, and attended by about 5,000 people.

The weekly markets of Shengaum and Sarawde in the Bhudargad Peta, Sarud and Bajarbhogaum in the Panhala Peta, Uttur in the Ajare Taluka, Kotkol in the Gadinglaj Peta, and Malkapur in the Vishalged State, are attended by 4 to 5,000 people for 8 months in the year, but they are confined to the sale of the ordinary necessaries, consisting of grain, cloth, vegetables, &c. Sarawde carries on a pretty large trade in rice.

The weekly markets at Walwe and Tikpurli are attended by more than 3,000 people, while those at Sangrul, Dhamud, Kodoli, and Chinchali by more than 2,000 people only. Walwe is the chief Churmura mart in the territory, and Tikpurli has large rice dealings like those of Sarawde.

Chinchali and Pattankodoli have large fairs attended by more than 25,000 people. At both these places a large number of temporary shops are opened for two or three weeks, and large sales effected.

6. Any thing that tends to place Technical or Industrial education within easier reach of the population than at present, will largely help the industrial development of the territory. Instruction in Drawing, and in the use of tools for wood and iron work, should begin earlier in the Taluka schools.

Elementary Drawing ought to form part of regular work in all primary schools, as in England. In the third and fourth standards, elementary principles of Agriculture and of wood work might be taught by means of object lessons, and in the fifth and sixth vernacular standards, elementary training in some handicraft and in the rudiments of Agriculture might be given. Such elementary training acquired in the primary schools will enable such of the students, as can afford to go to the Kolhapur Technical School, to make more rapid progress than at present.

In the Girls' Schools hand-spinning and weaving, hosiery manufacture, household sewing, dress-making, and cutting out might be taught with advantage. In some large schools, lace-making, domestic hygiene, and native cookery may be added. These will make the Girls' Schools more popular than the teaching of purely literary subjects ever can.

The Technical School at Kolhapur might be strengthened by the addition of a few more branches of instruction, such as weaving, modelling, designing, and pottery, &c., calculated to give work to the students after they leave the school. As the subject is too comprehensive to be adequately dealt with in a report of this kind, I have only indicated the broad lines, referring the authorities for fuller information to an exhaustive paper on Technical Education lately read by the Principal, Ahmedabad Training College, at the late Industrial Conference held at Poona. (*Vide* No. II. of Vol. III. of the "Industrial Quarterly Review of Western India" for July 1894.)

7. The results of the Industrial Survey may be summarised as follows:—

The territory is, on the whole, poor in industries, some of the most important of which are confined only to the eastern portion, which is partly agricultural and partly industrial. The western is purely agricultural, but richer in its mineral and forest resources, which are capable of development, side by side with the industries in the other, where some agricultural industries might also be introduced, so as to give employment to the population. The industrial products of the territory are now actually known.

Weaving, the most important and leading industry in the province, is much capable of improvement and development in the directions indicated. Ichalkaraji, Kolhapur, Wadgaum, Kathol, Kodoli, Rendal, Hupri, Halkarni, Uttur, Sangrul and Kapshi are the most important centres of weaving. Next to it in importance is the cumblee industry, which, though pretty thriving, is somewhat going down for want of wool, brought on by a diminution of pasture grounds. Dhangars, who produce cumblees superior to those of Sangars, ought to receive concessions, whereby their trade will gain in vigour. Shirol, Herwad, Chinchali, Rayabag, Mutnal, Harali and Waghapur are the great centres of Dhangar-made cumblees, while Kolhapur, Wadgaum and Kapshi, those of Sangar-made ones.

Oil-pressing is another important industry which is also declining, but, in the absence of a demand for the product, the only direction in which it can be improved is to secure the export of the oil instead of the oil seed, which now goes out of the country in such large quantities. Kolhapur and Wadgaum are the great centres of this industry. Pottery is an extensive but poor industry which supplies only local wants; so do rope-making, carpentry, metal work, leather work, bamboo work, spinning, and foundry-work. Paper and gunny-cloth making now exist only in name, but can be revived. Of these, pottery can be developed by introducing superior pottery, and the tile and brick making in the Bhudargad, Gadinglaj and Panhala Petas. Shengaum is best suited for pottery works, and Basapur for tile industry. Rope-making and fibre extracting can develop by increased cultivation of aloe and other fibre plants. Tanning and fibre extracting are even now pretty thriving industries, and will thrive better still when they command a better export trade. Parched rice making is another thriving industry, and has an export trade commensurate with its importance. Valwe, Nigwe, and Yamge are the three great centres of this industry. Sugar-refining is a respectable industry, and is worth encouraging and improving. Sulkud, Rendal, and Yelgud are the chief seats of this industry. Metal work is yet to be introduced. It is at present simply confined to repairing old articles. Iron smelting, which has declined, deserves to be revived. Shirgaum is a great dyeing centre, containing dyers who are as skilful as those of Gokak, Shahapur, and Rabkawi, and are deserving of encouragement. Bangdi-making and lacquer-work, solitary industries in the Bhudargad Peta, are in a declining state for special reasons, but are capable of being improved and developed. Nothing new in the shape of industries except pottery can be introduced in the Bhudargad and Panhala Petas, and the Bawda and Vishalgad States, except by a development of their agricultural and forest resources, for which there is much scope. The introduction of coffee and cardamom cultivation will be advantageous, and there are many localities, both on the plains and on the slopes of mountains in the territory, suitable for the purpose. Aloe cultivation will yield good return from sterile and useless lands throughout the territory. It is now established beyond doubt that the majority of the population is engaged in agricultural pursuits. Almost all culturable land has been taken up in the eastern part, and what little is left unoccupied in the western is because it does not give crops every year. The forests are thriving, but Kumri cultivation having been stopped, and the remaining land available for cultivation not being sufficient for the agricultural needs of the people, employment must be found in these parts for them in other directions.

8. In order to carry out to a successful issue the reforms and sugges-

A Trade and Agricultural Department.

tions embodied in this report, it will be necessary to organize in the state a Trade and Agricultural Department, which will economically shift the proposals by subjecting them to

trials and experiments. The state need not look for people for such work outside itself. The agricultural and trade statistics as collected at present are unreliable and practically useless. A better system should therefore be devised for registering agricultural produce, and also the road-borne trade of the province, of which nothing is known at present. The department suggested will not only be the custodian of the land records and survey maps, but will also serve for a more efficient examination of the survey marks and other matters connected with the Revenue Survey as in the British Districts. Trials in coffee, tea, and cardamom cultivation, and the development of the existing, and the introduction of new industries, can only be satisfactorily conducted, when there is a special department to look after them. The present staff being already overworked, they cannot spare time for this additional work of watching the Industrial and Agricultural development. I shall therefore strongly recommend the organization of a separate department for trade and agriculture in the Province.

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## CHAPTER IX.

## AGRICULTURAL CONDITION OF THE KOLAHPUR TERRITORY.

A set of questions drawn up in the form given in the appendix were circulated along with the Industrial returns, for ascertaining principally the indebtedness and the general condition of the agricultural classes in the territory. The mass of valuable information thus collected requires to be locally verified, before anything reliable can be said about effecting improvements. The statistics, as officially collected at present, are very poor and imperfect on account of more than a quarter of the area being alienated. The replies received to the questions aforesaid, and the statistics available, will guide us, however, in briefly noting down what the present food-producing capacity of the province is, what the necessities of home consumption are, how far cultivation has extended in the course of the last fifteen or twenty years, how far it is possible to increase it horizontally and vertically, and in what direction it is possible to improve and develop agriculture to better the condition of the rayots, to what extent the agricultural population is indebted, and in discussing what can be done either by the State or by agencies to relieve cultivators in this respect.

As already stated elsewhere, leaving out of account the few existing industries described in another portion of this report as giving work to but a small fraction of the population, agriculture is at present the sole occupation of the mass of the people, as well as their only means of subsistence. According to the late census, only 9·8 per cent of the total population of the territory is returned as consisting of industrial classes. The information collected for the Industrial Survey still reduces this percentage by bringing to light that a large number of the so-called industrial population takes to agriculture also during the rainy season. The old balance of the rural and urban industry is thus quite disturbed, and it is painful to recognise the fact that the mass of the population is, at this hour, quite at the mercy of the soil and rain for its very daily bread, and that no attempt has been made either to foster the existing industries, to revive the dying ones, or to introduce new ones.

2. This review will be confined to the last twenty-three years, for which alone some information, though incomplete, is available. The following table gives the main agricultural figures for decennial periods, starting from the year 1871-72, the first in which a regular census was held.

Comparative view of  
the population, revenue,  
culturable land, &c.

*Statement giving the population, revenue, culturable and cultivated area, &c., &c.*

| No. | Description.  | 1871-72.  | 1881-82.  | 1893-94.  | Increase or decrease since 1871. | Per-centage of increase. |
|-----|---|-----------|-----------|-----------|----------------------------------|--------------------------|
| 1   | Population of Kolhapur Proper...                          | 6,19,683  | 6,24,827  | 7,05,251  | 85,568                           | 13·8                     |
| 2   | Do. of Feudatories ...                                    | 1,82,984  | 1,75,362  | 2,07,880  | 24,896                           | 13·6                     |
| 3   | Total population... ..                                    | 8,02,667  | 8,00,189  | 9,13,131  | 1,10,464                         | 13·7                     |
| 4   | Culturable land ... ..                                    | 12,91,180 | 13,54,716 | 14,49,949 | 1,58,759                         | 12·29                    |
|     | Kolhapur Proper ... ..                                    | .....     | .....     | 11,02,329 | .....                            | .....                    |
|     | Feudatories ... ..  | .....     | .....     | 3,47,620  | .....                            | .....                    |
| 5   | Land occupied and cultivated ...                          | 11,47,648 | 11,43,070 | 12,94,195 | 1,46,547                         | 12·7                     |
|     | Kolhapur Proper ... ..                                    | .....     | .....     | 9,82,781  | .....                            | .....                    |
|     | Feudatories ... ..  | .....     | .....     | 3,11,414  | .....                            | .....                    |
| 6   | Culturable waste ... ..                                   | 1,43,542  | 2,11,646  | 1,55,754  | 12,212                           | 8·4                      |
| 7   | Current fallows ... ..                                    | .....     | .....     | 2,47,733  | .....                            | .....                    |
| 8   | Irrigated area ... ..                                     | .....     | .....     | 34,420    | .....                            | .....                    |
| 9   | Area double-cropped ... ..                                | .....     | .....     | 55,208    | .....                            | .....                    |
| 10  | Total gross revenue of the territory.                     | 29,61,417 | 33,00,090 | 38,09,529 | 84,312                           | 28·6                     |
| 11  | Land revenue of Kolhapur Proper exclusive of alienations. | 8,89,593  | 11,76,557 | 11,77,998 | 3,08,405                         | 35·0                     |
| 12  | Do. including do. ... ..                                  | .....     | .....     | 18,15,662 | .....                            | .....                    |
| 13  | Do. of the territory including Feudatories.               | .....     | .....     | 23,83,165 | .....                            | .....                    |

Out of 18,27,264 acres, the total area of the territory, 2,53,453 acres or 13·8 per cent. are under forests, 14,49,949 are culturable, and the remainder not available for cultivation. The arable land in the province is thus a little less than 80 per cent. of the total area. This is only 1·58 acres per head of the total population, or a little more than two acres per head of the agricultural population (6,89,568). Only 12,94,195 acres out of this area are actually occupied, leaving 1,55,754 acres of culturable waste still available at the present day. Of this occupied area, 2,47,733 acres are lying fallow, in other words, 10,46,462 acres is the net cropped area for agricultural operations, giving on an average a little more than 1·5 acres per head of the agricultural, and 1·14 per head of the total population.

3. In the course of the last twenty years the culturable area has increased by 1,58,759 acres or 12·29 per cent. This means that so much more of the land available for cultivation has been reclaimed; on the other hand, the culturable waste has increased by 2,212 acres or 1·5 per cent. instead

Culturable and cultivated areas, and extent of increased production.

of decreasing. The population has increased during the same period by 1,10,464 souls or 13·7 per cent.; so the increase of the occupied area is a little more than only one acre per head of the increased population.

The cultivated, or, more correctly speaking, occupied area bears to the culturable waste a ratio of only 6 to 1 at present, while the same for the whole of India is 3 to 2. Thus the room for increased production by utilizing the waste is very limited. Besides, the country, especially the western half of it being hilly, the greater portion of the land not being naturally fertile, and much of the culturable land having already been occupied, that which is now returned as culturable waste must be too poor, to be brought under the plough with prospects of any but a very poor return even with great difficulty and expense. Much of the new land brought under the plough in the course of the last twenty years has not been very rich, its productiveness being only  $\frac{1}{2}$  or  $\frac{1}{3}$  of that already under cultivation. The agricultural value of waste-lands, according to the Famine Commissioners, does not, acre for acre, much exceed  $\frac{1}{5}$  of that of the existing cultivation. The value of the available waste in our territory is even less than this, as it can only yield a crop after lying fallow for several years. Thus, when the demand arises for the full utilization of the margin of production, this waste-land will not be capable of much production even by high-class cultivation, nor of giving employment to a large number of agricultural labourers. So far as the available culturable land is concerned, the margin of production is very narrow, and there is not much room now for the *horizontal* extension of cultivation in the Province.

Over-crowding of the Rayot's field of work, consequent on the increase of population, and, concurrently with it, a collapse of the non-agricultural industries which would draw off the increase, have resulted in a most unhealthy overcompetition for land, forcing up the rents against him, bringing down the profits of his work, and even compelling him, under the increased economic pressure, to fall to the status of a tenant-at-will. By the last census, a population of 6,89,563 souls lives on the soil on a cropped area of 12,94,195 acres, *i.e.*, less than two acres per head. Assuming, with Sir J. Caird, that a square mile of cultivated land can give full employment only to 50 persons—men, women and children together—or 12·8 acres per head, our cropped area is not enough at this rate even for an agricultural population of one lac. Even assuming six acres per head, it can engage only two lacs, or, at the rate of 4 acres per head, three lacs. Thus under any standard, more than three lacs of our agricultural population are without adequate employment, and in a condition of demoralizing indolence. The loss of work and working energy is enormous. But such an excessive concentration of a large population on the soil has the unnatural effect of over-crowding the field against the agricultural workers,

sending up rents, and bringing down the profits of husbandry and the wages of agricultural labour. Thus, both the under-tenant and the farm-labourer are heavily weighted, and equally so the occupancy-tenant.

4. Passing next to the double-cropped and irrigated areas, or what is called *vertical* extension of cultivation, there were

Double-cropping.

last year 55,208 acres under double crops. This was 42,583 acres or 4·25 per cent. of the whole cultivated area in 1886, the remotest year for which figures are available. Thus, during the last seven or eight years, it has increased by 12,625 acres or 29·6 per cent.—a very encouraging sign. Second crops are generally grown on rich rice-lands, after rice has been harvested. Some, such as Khapali (wheat), pulses, onions and vegetables, are also grown on irrigated lands, when they are sown with rice as a bevad or a preparatory crop for sugar-cane, ground nut, &c. The present double-cropped area is 36 per cent., or more than one-third of the total area under rice. The advance in the people's resort to this method of extending cultivation has been steadily increasing, and peas, páwtás, masur, and some other varieties of dry winter crops are extensively grown, especially on rice-lands. This double-culture system opens up a new and improving line of agricultural development, and is likely to afford increasing effective relief to an advancing population pressing upon the soil. This second cropping entirely depends on the late rains in October, failing which, the area under these crops is at once narrowed. So it varies from year to year with the rainfall. In the year of seasonable rainfall, this method of cultivation is capable of much increase, provided care is taken to replenish the soil by an adequate use of manure and water; otherwise, there would be the serious danger of accelerating soil exhaustion.

5. Passing thirdly to irrigation, we have an irrigated area of 34,421 acres in the whole territory, i.e., 2·6 per cent.

Irrigated Area.

of the total occupied area, and 3·3 per cent. of the total net area cropped. The remaining 96·7 per cent. of our cropped acreage is entirely dependent on the rainfall. In 1881, the irrigated area, for Kolhapur Proper, as given in the *Gazetteer*, was 15,290 acres out of 5,59,736 acres under actual tillage, or 2·73 per cent. of the cropped area. Thus it has increased in the last 13 years to 3·3 per cent. only, the net increase in the percentage being ·57. There are no canals or irrigation works in the territory, except a few páts or water-courses, which supply water to some wheat and ground-nut crops, and are dried up by January or February, and the Rankala and another pond or two at Kolhapur, which water a few acres of garden-land. Nearly all the irrigation in the territory is carried on by means of wells, or budkis dug in river and stream-beds. The number of new wells is increasing and the old ones are being repaired. In 1881, the number of working wells was 7,547. Now it is 12,016, an increase of a little less than 60 per cent. in 13 years, or 343·7 wells per year, which looks very satisfactory. Each well irrigates on an average 2·8 acres, but, as



stated before, the whole of the land is not so irrigated. Some is irrigated by budkis dug in river-streams, and some by channel irrigation which is not available throughout the year. This process is resorted to principally in the Bhudargad and Panhala Petas, and the Vishalgad and Bawda States, and the Ajare Taluka, and partially in the Karwir and Gadinglaj Petas. The cropped area, wells, and irrigated area, as returned for 1892-93, are distributed as follows in the various divisions of the territory :—

| No. | Divisions.          | No. of Villages. | Cropped Area. | Irrigated Area. | Percentage of Irrigated Area to Cropped Area. | No. of Wells. | Irrigated Area per Well. |
|-----|---------------------|------------------|---------------|-----------------|---|---------------|--------------------------|
| 1   | Karwir ... ..       | 185              | 1,47,466      | 7,082           | 4.77  | 1,682         | 4.6                      |
| 2   | Panhala ... ..      | 202              | 1,40,026      | 3,766           | 2.9   | 917           | 4.9                      |
| 3   | Alte ... ..         | 49               | 1,11,660      | 9,138           | 8.2   | 3,459         | 2.2                      |
| 4   | Shirol ... ..       | 64               | 1,22,591      | 2,673           | 2.8   | 1,457         | 1.8                      |
|     | Shirol ... ..       | 808              |               |                 |   |               |                          |
|     | Bayabag ... ..      | 649              |               |                 |   |               |                          |
|     |                     | 1,457            |               |                 |   |               |                          |
| 5   | Gadinglaj ... ..    | 176              | 2,29,377      | 4,465           | 1.9   | 1,587         | 2.8                      |
|     | Gadinglaj ... ..    | 1,296            |               |                 |   |               |                          |
|     | Kutkol ... ..       | 168              |               |                 |   |               |                          |
|     | Kupashi ... ..      | 123              |               |                 |   |               |                          |
|     |                     | 1,587            |               |                 |   |               |                          |
| 6   | Bhudargad ... ..    | 194              | 1,25,573      | 1,508           | 1.25  | 507           | 2.9                      |
|     | Total ... ..        | 820              | 8,76,693      | 28,632          | 3.26  | 9,609         | 2.9                      |
| 7   | Vishalgad... ..     | 66               | 31,707        | 9½              | ...   | 96            |                          |
| 8   | Bawada ... ..       | 69               | .....         | .....           | .....   | 354           |                          |
| 9   | Kagal ... ..        | 46               | 72,380        | 3,634           | 5.15  | 694           | 4.58                     |
| 10  | Ichalkaranji ... .. | 78               | 86,466        | 2,142½          | .....   | 1,075         |                          |
|     |                     | 259              |               |                 |   | 12,013        |                          |
|     | Total ... ..        | 1,079            |               |                 |   |               |                          |

Evidently the number of wells returned in the above statement includes some which are not at all used for irrigation. In Vishalgad, Bawda, and Ajare, for instance, a large number of wells has been returned, while there is very little area under well irrigation, and what little there is, is irrigated by means of budkis in the beds of rivers. Assuming, therefore, only 80 per cent. of those returned to be intended for irrigation, the number of working wells falls down to 9,613, showing an increase of 13 per cent. in 13 years, each well irrigating on an average a little more than two acres of land.

Arranging the Petas according to their respective number of wells, Alte with 3,459 wells ranks first in irrigation as it does in industries. It

has not only the largest cropped area, but also the largest extent of irrigated area, namely, 2,138 acres, all depending solely on wells. Each well irrigates on an average 2·2 acres. The irrigated area is 8·2 per cent. of the total cropped area, which is the largest percentage in the whole territory. Next comes Karwir Peta with 1,680 wells, and an irrigated area of 7,082 acres. Each well irrigates on an average 4·6 acres. But as more than half of this area in the western portion of this Peta is irrigated, either by budkis or by channels, each well does not irrigate more than two acres on an average. The Shirol Peta, exclusive of the sub-division of Rayabag, appears pretty well off in point of irrigation, having more than 4 per cent. of irrigated area, and 808 wells irrigating 2,144 acres, or 2·6 acres per well. But Rayabag is very poor, having only 69 per cent. irrigated area, and each well irrigating 78 of an acre. Bhudargad is likewise very poor, having an irrigated area of 1·25 per cent. of the cropped area. The Gadinglaj Peta has 3,112 acres of irrigated area (2·7 per cent.) and 1,296 wells, i.e., 2·4 acres per well. Katkol, like Rayabag, though the worst in point of irrigated area, has the best acreage per well. Though Panhala has a good number of wells, most of the area is irrigated by rivers. Both Panhala and Bhudargad have ample means of river irrigation.

Among the feudatory States, Kagal is the best in point of irrigation, having 3,634 wells, with 4·58 acres per well of irrigated area, and 5·15 per cent. of the total cropped area. The Ichalkaranji Taluka has 774 wells, and 2,013 acres of irrigated area. The Bawda and Vishalgad States, and the Ajare Taluka, though very poorly irrigated, are all capable of having much river and Pat irrigation.

The variable rainfall, limited to but a few months of the year, makes irrigation a necessity, especially in the western part, where the agriculturist has to fall back upon an artificial irrigational supply, both to supplement the deficiencies of seasonable rain, and also as a means of increasing production by the growth of green crops.

The increase in the number of wells, and in the irrigated area, proves that the cultivators show everywhere a desire to avail themselves of irrigation for growing garden crops which are more profitable than dry ones. There is still scope for extending the irrigated area. Though an estimate of the whole irrigable area in the province has yet to be made out, there may be at least about ten thousand more acres capable of being irrigated, half by means of wells, and half by river and canal irrigation. The new wells returned as dug up have not received much Government aid. In the year 1892-93, only Rs. 5,250 were advanced by the State to the cultivators to construct wells in the Kolhapur territory (proper). These were advanced in the Alte Peta, and the Rayabag and Katkol Mahals only. The rules about such advances were originally rather stringent, and the instalments

to be paid high. They were modified in 1891, and the terms on which loans were offered were made more favourable. Still very few applied for the proffered aid.

To irrigate 1,000 acres, or one-tenth of what has been assumed to be capable of being irrigated by wells, will require at least five hundred wells at the rate of one well for every two acres. Calculating at the average rate of Rs. 1,000 per well, these 500 wells will cost Rs. 5,00,000, which if advanced to the cultivators for this purpose, say in the course of the next 10 years at Rs. 50,000 per annum, the result will be a net increase in production, and net interest of 6 per cent. on the capital invested by the State. In like manner, if the State were to invest Rs. 5 to 10 lacs on water projects in some of the valleys in the western part, it cannot fail to afford considerable employment to the starving people in that part, and in the end secure a net increase in production, with a net interest of 3 or 4 per cent., if not 6 per cent., on the invested capital.

The territory is apparently well situated for canal irrigation on a small scale in the six principal valleys of its chief rivers. A survey of the territory with this object in view is well worth being made.

6. Much of the inferior and waste-land in the western portion of the territory is capable of being reclaimed for rice-growing. As the greater portion of it is owned by the State, this will entail some expenditure. The present system of assessing such lands at the full rice rates as soon as they are reclaimed by the cultivator, without making allowance for the expense and labour he bestows upon it, has certainly a deterrent effect, and requires to be modified.

Another way to increase production is the introduction of new plants, and the increase of area under rich crops, rice, sugarcane, wheat and spices, for instance, among food products; sesamum, castor, rape, mustard, and linseed, among oil seeds; aloe, sida, &c., among fibres, and so on.

Considering both kinds of cultivation, we have a total increase in our cropped area of 12 per cent. during the last 23 years, evidently not an adequate advance to balance the pressure of increasing population and revenue, and also of the increasing exports to pay for the industrial products imported. Let us now consider how far the balance has been maintained by an improvement in the style of husbandry, and an increased yield from the soil; *i.e.*, how much intensive cultivation has progressed in the place of extensive cultivation.

7. We shall begin with the Rayot's agricultural stock. The following Table shows the stock as it stood in 1881-82 and in each of the five years ending with 1893-94:—

|                           | 1881.   | 1888-89. | 1889-90. | 1890-91. | 1891-92. | 1892-93. | 1893-94. |
|---------------------------|---------|----------|----------|----------|----------|----------|----------|
| Bullocks ... ..           | 149,762 | 140,680  | 168,935  | 176,245  | 179,905  | 173,772  | 173,446  |
| Cows ... ..               | 112,735 | 104,371  | 130,565  | 140,706  | 135,542  | 135,760  | 124,885  |
| Bull-buffaloes ... ..     | 61,130  | 61,560   | 75,791   | 79,443   | 72,406   | 69,755   | 66,333   |
| Cow-buffaloes ... ..      | 74,043  | 74,329   | 66,042   | 60,679   | 68,146   | 67,695   | 69,098   |
| Horses, mares, &c. ... .. | 5,583   | 5,258    | 6234     | 6,756    | 6,141    | 6,107    | 6,158    |
| Asses... ..               | 876     | 1,575    | 1,808    | 1,635    | 1,842    | 1,739    | 1,897    |
| Sheep and goats ... ..    | 144,477 | 151,848  | 174,485  | 183,442  | 184,342  | 174,802  | 181,268  |
| Ploughs ... ..            | 37,921  | 37,921   | 51,700   | 52,340   | 53,931   | 54,072   | 58,419   |
| Carts... ..               | 8,592   | 8,592    | 16,031   | 16,266   | 18,042   | 17,573   | 17,955   |

The plough-cattle, that is, bullocks and bull-buffaloes, have increased in nearly the same proportion as the area under actual tillage, viz., 13 per cent. The number of ploughs, while it shows so large an increase as 49 per cent. during the last 13 years, has increased only 9 per cent. in the last five. Out of the total number of 239,979 bullocks and bull-buffaloes tabulated above, more than 15 per cent. must be young ones. The remaining 157,845 are available for the cultivated area of 1,294,195 acres, or a pair for each 16 acres. The plough cropped area is nearly 23 acres per plough, which is anything but good ploughing, when it is assumed that a pair of bullocks is necessary for ploughing every six acres during the three or four months following the harvest. At this rate, the cattle in the territory would appear to be up to the requirements of about half the area. Usually, wet cropped lands, such as garden and rice lands, are ploughed every year, and most of the dry cropped ones are simply harrowed, and are ploughed once in 3 or 4 years, and in the eastern parts once in 6 or 7 years. The ploughing done is not deep enough, and the soil suffers in seasons of deficient rainfall or drought, as well as from heavy rainfall. The absorptive and retentive powers of the soil are not increased by such ploughing, and when the rain comes down in heavy showers, it rushes off the land, and carries away vast quantities of rich plant food from the surface, unless protected by strong embankments. The crops grown are mostly cereals or grass (over 70 per cent.) which are surface soil feeders, and as the sub-soil is seldom brought up, the surface soil gets more and more exhausted by repeated unmanured cropping, and is seldom replenished except under the action of the sun and a moist atmosphere.

At present, cultivators plough their lands generally at the time of sowing. Consequently, the sub-soil never gets replenished under exposure to the action of natural forces, as it would if brought up by ploughing three or four times in the dry season.

The quality of the agricultural live-stock, instead of improving, is deteriorating. Neither the state nor the cultivators have any large cattle farms for breeding purposes scattered over the territory, the system of breeding appears to be defective, and want of good fodder and pasture is also complained of. Though the state has cattle farms for its own requirements, the total number of cattle therein is only 590. At most of the weekly markets, the majority of the cattle offered for sale come from outside the territory. Cattle bred and brought up in other climates, do not thrive in the territory, and are often subject to epidemics. As the success of agriculture so much depends on live-stock, the establishment of cattle and sheep farms, one in each of the six principal divisions of the State, deserves early attention. Fodder, which is deteriorating in quality, should also be improved. As we go towards the western portion of the territory, abundance of river-water facilitates the growing of green fodder. Many cultivators near the Sahyadri, having no plough-cattle, conduct all agricultural operations by hand. Having no land either, it is no wonder that these people should seek to get good crops at the expense of the jungle, by resorting to Kumri cultivation. Buffaloes are known to stand the heavy rain and wet climate of the western parts better than bullocks. The Dhangars already existing in these parts can, with great advantage, be encouraged, by special concessions, to rear the best buffaloes.

The number of sheep and goats has increased, but not commensurately with the increased wants of the people. On the contrary, there is a general complaint that their number is going down lately for want of sufficient pasture, as pointed out under cumblee-weaving. Though the number of ploughs has increased, no improvement has taken place in their construction, or in that of other agricultural implements either. Without such improvement, and with the deterioration of the plough-cattle, and the concurrent enlarged cropped area, cultivation cannot but suffer.

8. The Rayots' available manure-supply is also undergoing contraction, and it is now only sufficient for about 20 per cent. of the acreage. Night-soil manure is freely and largely used at Kolhapur. At all other places, farm-yard manure, sweepings, twigs and leaves of trees, and droppings of sheep are available. Green manure is occasionally used, but the value of oil-cake is unknown. Sheep-folding is very extensively resorted to as a method of manuring. 6,000 sheep can manure one acre in a night. At this rate our flocks containing 181,208 sheep, and goats, if fully utilised for more than 6 months, can manure at the most 25,000 acres. So this supply would appear to be

inadequate, and sheep-breeding deserves attention. The supply of farm-yard manure is being curtailed by the use of cowdung for fuel. As a general rule, for nearly eight months in the year, the village women sell cowdung as fuel, and collect it for manure only during the rains, when, on account of the wet season, it cannot be sold. This sale will be checked, when, with the progress of forest conservancy, an increase in the quantity of fuel will make it cheaper than cowdung cakes. It is only at places far away from large towns, that all cattle-dung is used for manure. The supply of ash-manure, so much used towards the Ghants, is increasing with the progress of forest conservancy, but facilities for its collection are necessary. Large exports of bones are depriving the country of another valuable material, to the prejudice of agriculture, as is also the large export of grain from the territory. No artificial manures, mineral or chemical, have been ever used—gypsum, for instance, which is found in the territory, can be used for this purpose, if not for manufacture; so also nitre, which can be manufactured in the Rayabag district, as suggested elsewhere, and lime and phosphates. Another source of manure in the jungles, which can be utilised like guano in America, is the large collection of the droppings of bats and other birds in the hollows of high hills. There exists a large cavern in the laterite rock at Fejiwade in the Bhudargad Peta, and many on the slopes of the Bawada fort. The droppings are so highly prized by the cultivators that they are carried to long distances. The cavern at Fejiwade is at present accessible only over an area of 8,000 square feet, another portion being intensely dark and inaccessible. The heaps of manure now lying unused there can be got at by making holes in the top. Many other such places may be brought to light if search is made for them. At Bawada, all the hollows are filled with water, which holds in solution the dung that drops in. The removal by a syphon, every year, of the water which collects there during the monsoon, will make the dung available. This manure even now is largely used by the Bawada Chief for his culinary garden. There is another such cavern at Padasali, and another on the Borbet mountain in the Panhala Peta.

At present the garden lands alone are manured in the proper sense of the term, scanty supplies of village ashes and sweepings falling to the lot of some of the dry crop lands. Rice, wheat, maize, tobacco, sugar-cane, ground-nut, chillies, and some other garden crops, in all covering about 240,000 acres or 19 per cent., receive some manuring, and the remainder, that is, 81 per cent., is cropped almost without any manure or with very scanty supplies of it.

9. As regards the application of the restorative methods, such as rotation and mixed cropping, they are generally practised as far as possible. At present, the general system of cropping, under which 90 per cent. of the cropped area is laid under what are called exhaustive crops, leaves often little scope for a proper alternation of crops, cereals, and legumes, so as to secure the

maximum advantage of surface and subsoil. The cropping continues from year to year for some years in many lands, without manure and water-supply, and without any attempt at restorative rotation, till the last stage of soil exhaustion is reached, and then it has to be allowed to lie unsown in order to replenish itself under the action of natural forces. This brings us to the consideration of what are termed "current fallows."

10. Fallowing is an old and crude restorative method. In this territory the extent of land that is allowed to lie fallow is returned at 247,733 acres, i.e., over 19 per cent. of the total occupied area. This ratio is 16 per cent. in Bombay, 23 per cent. in Madras, and lower elsewhere. This fallowed acreage has been steadily increasing. In the course of the last 7 years, for which statistics are available, it has increased from 223,459 to 247,733 acres, i.e., more than 10·8 per cent. During each of these seven years it stood as follows:—

|                          | 1887-88. | 1888-89. | 1889-90. | 1890-91. | 1891-92. | 1892-93. | 1893-94. |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|
| Current fallows .. acres | 223,459  | 225,245  | 289,324  | 257,989  | 294,608  | 295,406  | 247,733  |
| Double cropped area .. " | 42,583   | 63,931   | 55,265   | 62,303   | 44,259   | 56,595   | 55,208   |
| Rainfall .. ...          | 40·73    | 41·3     | 46·93    | 51·83    | 34·4     | 55·90    | 40·1     |

An increase of 10 per cent. in seven years is indeed large, and means exhaustion of the soil. It is partly due to the Rayots' growing want of means, and partly to the progress of soil-exhaustion. At any rate, it is an indication of agricultural deterioration. On such land, in the majority of cases, the Rayot has to pay an assessment not for cultivation, but for occupation. Taking 4 or 6 annas as the average rate per acre, he pays more than  $\frac{1}{2}$  of a lac of Rupees for land on which he does not, and cannot, grow any thing.

This method was practically advantageous when there were vast reaches of soil of virgin fertility awaiting the hand of man, or, when the population being small, different patches could be cultivated by turns. But now, when population so hardly presses upon the soil, when the Rayot has to pay for the majority of the industrial products by agricultural produce, and when every acre is required to be under crop, recourse to this method in preference to manuring and other restorative means involves a needless and positive waste of resource.

11. As to the outturn of the crops the data are very meagre. It is only in the course of the last four years that figures about the outturn of the principal crops have been published. The yield must vary from season to season, and from field to field, according to the rainfall. But allowing for all such variations, and taking good years with bad ones, there is a widely prevalent belief that it is steadily diminishing, particularly on dry crop lands, which is 96·8 per cent. of our cropped area. The full out-turn, considered to be sixteen

annas in the Rupee, was often exceeded in good old times. Now it is always below 9 or 10 annas, and, in years of scanty rainfall, it goes down to 4 or 6 annas, and even so low as an anna in some cases. In the statistics given below for the Karwir Peta for the last four years, it has never reached the maximum limit :—

| No.            | Crop.      | 1890-91. | 1891-92. | 1892-93. | 1893-94. | Average. |
|----------------|------------|----------|----------|----------|----------|----------|
| <i>Kharip.</i> |            |          |          |          |          |          |
| 1              | Rice       | 12       | 6        | 10       | 10       | 9.5      |
| 2              | Nagali     | 8        | 10       | 8        | 10       | 9        |
| 3              | Bajari     | 10       | 6        | 6        | 9        | 7.75     |
| 4              | Jowari     | 12       | 10       | 14       | 12       | 11.5     |
| 5              | Rala       | 12       | 1        | 8        | 3        | 6        |
| <i>Rabi.</i>   |            |          |          |          |          |          |
| 1              | Tur...     | 10       | 6        | 7        | 3        | 6.5      |
| 2              | Wheat      | 12       | 4        | 2        | 8        | 6.5      |
| 3              | Tobacco    | 8        | 4        | 3        | 1        | 4        |
| 4              | Gram       | 12       | 1        | 3        | 3        | 4.75     |
| 5              | Ground-nut | 12       | 2        | 8        | 8        | 7.5      |
| 6              | Pea ...    | 10       | 1        | 1        | 1        | 3.25     |
| 7              | Shalu      | 10       | 4        | 4        | 4        | 5.5      |
|                | Rainfall   | 51-33    | 34-4     | 55-90    | 40-1     | 46.32    |

Many experiments have established the fact that the produce of land, cropped continuously without manure, falls away in an ever-increasing ratio, and comes down in forty years from 17 to 9 bushels per acre. Sir J. Caird thinks that the present average produce in India is below 10 bushels per acre. The Famine Commissioners put it at 12 bushels per acre for all food-crops. Considering the inferior quality of our soil, it ought to be much less in this territory. The exhaustion of the soil is proceeding apace under the Rayots' reckless, ignorant, and exhaustive system of culture. When we remember how the Rayot crops his acres season after season, and takes away the exhaustive crops, without taking care to return to the soil what is taken from it, or even ploughing deep enough to allow natural influence to replenish it, the penalty he brings down upon himself, in the shape of diminished corn-heap, need occasion no surprise.

12. Public Taxation, to which the Rayot is the chief contributor, is steadily increasing, and the weight falls with peculiar pressure on him. The gross revenue of the Kolhapur territory has increased in the last 23 years from Rs. 29,61,417 to Rs. 38,09,529, *i.e.*, nearly (28.6) per cent. The average increase per year has been more than Rs. 35,000. This figure includes interest, tributes and contributions, forest revenue, &c., which the Rayots do not pay. Excluding such items, the general revenue of the territory, including feudatories and petty alienations, amounts to Rs. 31,56,934\*—

|                   |               |
|-------------------|---------------|
| * Kolhapur proper | Rs. 25,33,414 |
| Vishalgad ...     | 82,052        |
| Bawada ...        | 86,865        |
| Kapshi ...        | 65,049        |
| Kagal ...*        | 1,66,417      |
| Ichalkaranji      | 2,13,107      |

Rs. 31,56,934.\*



Thus the incidence of general revenue per head of population at present is about Rs. 3-7-0. But if we look to the actual collections, and exclude petty alienations, it comes to Rs. 2-11-0 per head. The land revenue of Kolhapur proper has increased by Rs. 3,08,405. Excluding resumptions of alienations, the net increase has been Rs. 1,73,071. The agricultural population has to pay this revenue in addition to other taxes, which they have to share with the non-agricultural. The total assessed area of Kolhapur proper is 1,102,329 acres, and assessed at Rs. 18,60,980. This gives an incidence per acre of Re. 1-11-0. But of this, 119,547 acres, assessed at Rs. 45,317 are lying waste, and the remaining 982,781, acres assessed at Rs. 18,15,662, are occupied. The incidence per acre of occupied area is Re. 1-13-0. About a lac and a half of acres lying fallow have also to be paid for. The total land revenue of the territory, including feudatories and all petty alienations, amounts to Rs. 23,63,165, giving an incidence per head of population of Rs. 2-9-4. But leaving petty alienations, the incidence per head is Re. 1-13-9. Thus, besides the land revenue, the revenue from Abkari, Stamps, Registration, Law and Justice, Local cess, &c., have all increased, and though the burden of the majority of them falls on the rayot, this increase has not been balanced by a rise in prices which have, if anything, fallen in the course of the last 23 years, as will be seen from the following:—

|                     | 1872. |    |    | 1882. |    |    | 1893-94. |    |    |
|---------------------|-------|----|----|-------|----|----|----------|----|----|
|                     | Rs.   | s. | p. | Rs.   | s. | p. | Rs.      | s. | p. |
| Rice, per maund ... | 5     | 13 | 0  | 3     | 7  | 9  | 4        | 14 | 9  |
| Jawari „ ...        | 3     | 4  | 5  | 2     | 0  | 0  | 2        | 14 | 6  |
| Wheat „ ...         | 5     | 0  | 0  | 3     | 0  | 9  | 4        | 14 | 9  |

Thus while the cultivators' corn-heap is diminishing, and its price falling, he is called upon to pay increased taxes in various shapes. This enhancement, coupled with the prospect of the land assessment rising, instead of encouraging him to increased exertion, plunges him deeper into debt and despondency.

13. This in its turn, leads us to the consideration of the Rayots' indebtedness, and its probable extent.

The Rayots' debts are growing to a very alarming extent, and the money-lender presses him harder than ever. With the diminishing yield from the soil, and the hard competition for land, he cannot, even in average years, pay his taxes and rentals, and live without borrowing. The fluctuations of the seasons, the exhaustion of the soil, the pressure of public burdens, the domestic requirements, and the various accidents of life, leave him no alternative but to go to the money-lender, and borrow money on ruinous terms in the absence of cheaper banking facilities. The result of information collected from every village in the territory about the rayots' indebtedness is embodied in the subjoined table, which does not include the banking houses and their capital, nor the indebtedness of the Inámdárs, Jahagirdars. Government and other servants, &c.:—

| No. | NAME OF THE DIVISION. | Population. | Land Revenue. | Debt of the Agriculturists. | Debt of the Industrial Classes. | Total Debt.   | No. of Times of the Assessment. | Rate of Interest. | No. of Money-lenders. | Their Capital. |
|-----|-----------------------|-------------|---------------|-----------------------------|---------------------------------|---------------|---------------------------------|-------------------|-----------------------|----------------|
| 1   | Karwir ... ..         | 151,597     | Rs. 3,59,681  | Rs. 22,34,151               | Rs. 2,02,222                    | Rs. 24,26,378 | 7.7                             | 12 to 24          | 654                   | Rs. 15,90,640  |
| 2   | Panhala ... ..        | 116,967     | 2,67,348      | 24,37,465                   | 57,959                          | 25,45,424     | 9.5                             | 24                | 486                   | 9,13,295       |
| 3   | Alte ... ..           | 108,883     | 3,19,308      | 14,24,500                   | 1,16,300                        | 15,40,800     | 4.8                             | 12 to 24          | 356                   | 8,79,100       |
| 4   | Sbirol ... ..         | 105,665     | 3,24,898      | 12,85,900                   | 84,025                          | 13,69,925     | 4.2                             | "                 | 237                   | 9,90,500       |
| 5   | Gadinglaj ... ..      | 127,849     | 3,20,064      | 23,89,875                   | 2,57,241                        | 26,47,116     | 8.25                            | 18 to 24          | 964                   | 18,85,757      |
| 6   | Bhudargad ... ..      | 94,280      | 2,24,362      | 10,22,476                   | 29,043                          | 10,51,519     | 4.6                             | 24                | 299                   | 8,80,374       |
|     | Total Kol. proper ... | 705,251     | 18,15,661     | 1,08,34,367                 | 7,46,790                        | 11,5,81,157   | 6.8                             | .....             | 2,946                 | 71,39,666      |
| 7   | Vishalgad ... ..      | 31,247      | 37,075        | 2,93,200                    | 54,800                          | 3,48,000      | 9.3                             | 24                | 386                   | 7,47,500       |
| 8   | Bawda ... ..          | 43,770      | 89,445        | 2,39,450                    | 14,012                          | 2,53,462      | 6.4                             | 24                | 388                   | 2,39,800       |
| 9   | Kapsi ... ..          | 13,226      | 29,927        | 1,53,400                    | 2,900                           | 1,56,300      | 5.3                             | 18 to 24          | 141                   | 5,16,000       |
| 10  | Kagnl... ..           | 53,272      | 1,24,800      | 10,66,443                   | 37,651                          | 11,04,094     | 8.8                             | 18 to 24          | 504                   | 9,25,890       |
| 11  | Iohalkaranji ... ..   | 66,365      | 1,49,720      | 8,51,350                    | 1,94,840                        | 10,46,190     | 6.9                             | 18 to 24          | 280                   | 10,00,800      |
|     | Total...              | 207,880     | 3,80,767      | 26,03,843                   | 3,04,203                        | 29,08,046     | 7.6                             | .....             | 1,699                 | 34,29,990      |
|     | Grand Total...        | 913,131     | 21,96,428     | 1,34,38,210                 | 10,50,993                       | 1,44,89,203   | 6.6                             | .....             | 4,645                 | 1,05,69,656    |

The agricultural and industrial classes are universally sunk in debt, and the Kolhapur money-lenders lend out money at rates varying from Rs. 12 to 24 per cent. The total number of such Sowkars is returned to be 4,645, with the aggregate capital of Rs. 1,05,69,656.

The total aggregate debt of the agricultural classes in the territory amounts to Rs. 1,34,38,210, or 6 times the total assessment of the province, and that of the industrial classes, to Rs. 10,50,993. Thus the total debt of these two classes comes to Rs. 1,44,89,203, which is about 41 per cent. more than the capital of the professional money-lenders, and the excess is, perhaps, lent by pleaders, Government servants, Inamdars, and other well-to-do classes. The Sowkar is, as a rule, as reluctant to reveal his actual capital as the rayot is anxious to conceal his debts. It is likely, therefore, that the total debt of one and a half crores returned is much below the actual amount, and may be safely assumed at double the figure. The majority of the Inamdars are also in debt to a considerable extent, which is not exactly known. The revenue of their landed estates exceeds Rs. 5,00,000. Assuming their debts to be 10 or 15 times this sum, the total debt of the agricultural and industrial classes, and the Inamdars, may be taken to be more than three crores. The debt of the industrial classes, who form only 12 per cent. of the population, is insignificant, being little more than 7 per cent. of the total; the majority of it is owed by the agricultural classes, who form more than 75 per cent. of the population. Another reason why the debt of the industrial classes is small is their inability to borrow large sums on easy terms, having nothing to offer as security like the valuable land of the agriculturists.

The average rate of interest returned for all the districts is from Rs. 18 to 25 per cent., and it is only in large towns, where there are many who lend money, that the rate ranges so low as from 9 to 12 per cent. in a few cases. Assuming 15 per cent. as the average rate the total interest due on a debt of three crores of rupees is Rs. 45,00,000, i.e.,  $1\frac{1}{4}$  times the gross revenue of the territory, or double the land revenue.

14. Captain Beauclerc, in his paper on the silver standard, read before the Industrial Conference held at Poona in 1892, assumed Rs. 2,00,00,00,000 (or two hundred crores of rupees) as the interest which the rayots have to pay annually to the Sowkars in the whole of India. Twenty-five crores of rupees is the land revenue of British India, and taking another 25 crores as the land revenue of the Native States, Inam lands, Dewasthans, &c., the

Captain Beauclerc's calculation.

interest which the peasants have to pay is four times that of the assessment, *i.e.*, for every rupee a peasant pays to Government he has to pay Rs. 4 to the Sowkar. The total population of India is more than 280,000,000, of which more than 75 per cent. are agriculturists. Assuming each cultivator's family to consist of 5 persons, the number of peasants' families in the whole Indian Empire exceeds 40 millions. Captain Beauclerc arrived at the figure of Rs. 2,00,00,00,000 stated above, by calculating the interest charge at Rs. 50 per annum per family, or Rs. 10 per head, and he said his estimate did not surely look like immoderate, for Rs. 50 a year was not excessive as interest on hereditary debt accumulations, current loans, advances, Government assessment, cattle and seed, &c., in the case of each family. Supposing 15 per cent. per annum as the average rate of interest which the peasants have to pay, the total amount of the debt of the agriculturists in the Empire would be more than Rs. 13,00,00,00,000, *i.e.*, Rs. 47 per head, or more than 26 times the assessment !!

Applying these calculations to the Kolhapur territory, the population of which is more than 9 lacs, of which more than 75 per cent. is agricultural, the number of peasant families, each consisting of 5 members, cannot be less than 135,000. At Rs. 50 per annum per family, or Rs. 10 per head, the total interest which they have to pay every year to the Sowkar comes to 67,50,000 (67 lacs and a half), or more than 3 times the land revenue of the province. Taking 15 per cent. as the average rate of interest, the total debt of the agricultural classes alone would amount to Rs. 4,50,00,000 (four crores and a half), *i.e.*, Rs. 48 per head, or more than three times the figure returned, and nearly more than 22 times the assessment.

Mr. Woodburn's report on the indebtedness of the Deccan districts, based on inquiries and calculations made in the 9 Deccan districts of Khandesh, Nassik, Nagar, Sholapur, Poona, Satara, Bijapur, Ratnagiri, and Thana, with a population of 89.5 lacs, arrives at an average of Rs. 28 of old debt per head of population. While the inquiries made in the Kolhapur territory give Rs. 16 per head, my calculation gives Rs. 32. Mr. Woodburn's calculation makes out the amount of interest which the Rayot has to pay on old debts to be twice the assessment, and as the Kolhapur district cannot be much less indebted than any of those mentioned by him, its debts according to his calculation would amount to Rs. 2,55,67,668, and the interest on this sum at 15 per cent. to more than 38.3 lacs of Rupees, *i.e.*, a little less than twice the assessment or Rs. 4½ per head, or Rs. 22.5 per peasant family of 5 members.

The mean of all these calculations, however, will be much nearer the truth, and the safest to go upon. The different figures stand as follow:—

|  | Rs.          |
|--|--------------|
| Amount ascertained from rough inquiries ... ..       | 1,34,38,210  |
| Amount according to my calculation ... ..            | 3,00,00,000  |
| Amount according to Captain Beaucherc's calculation. | 4,50,00,000  |
| Amount according to Mr. Woodburn's calculation ...   | 2,55,67,668  |
| Total...Rs.  | 11,40,64,878 |

The mean of these four calculations, viz., Rs. 2,85,16,219.5 may, therefore, safely be assumed to be the debt of the agricultural population in this territory. This is about 15 times the total assessment, and the interest on it at 15 per cent. is 42½ lacs, or more than twice the annual assessment of the province.

15. It is to be noted that these are the Rayot's old debts, and take no account of his annual borrowings, which are large and press heavily upon him. The annual borrowings of the Rayots in the four districts of Poona, Satara, Nagar, and Sholapur with a total population of 39,33,233, and a land revenue of 57.17 lacs, under the operation of the Agricultural Relief Act, average 58 lacs, i.e., 1.35 per head, or 93 per cent. of the total assessment. Mr. Woodburn bases this figure on the registration statistics of mortgage and money bonds during the last 8 years.

The major portion of this debt consists of grain, borrowed during the rains on condition of returning it at harvest time with 25 per cent. interest. Besides, every cultivator has to borrow small sums for his agricultural operations. I found, from inquiries made on the subject at some places, that more than 40 or 50 per cent. contract such debts during the rains.

The accompanying table gives the last 6 years' Registration figures for the Kolhapur territory:—

Registration figures.

STATEMENT giving the Registration and Stamp statistics for Kolhapur proper, only for the last five years.

| No. |                          | 1888-89.      |                    | 1889-90.      |                    | 1890-91.      |                    | 1891-92.      |                    | 1892-93.      |                    | 1893-94.      |                    |
|-----|--------------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|
|     |                          | No. of deeds. | Value of property. | No. of deeds. | Value of property. | No. of deeds. | Value of property. | No. of deeds. | Value of property. | No. of deeds. | Value of property. | No. of deeds. | Value of property. |
|     |                          |               | Rs.                |               | Rs.                |               | Rs.                |               | Rs.                |               | Rs.                |               | Rs.                |
| 1   | Deeds of Mortgage ... .. | 1,954         | 7,28,782           | 2,134         | 8,18,936           | 2,323         | 8,65,653           | 2,708         | 10,57,334          | 2,948         | 11,49,706          | 2,761         | 10,87,372          |
| 2   | Money bonds ... ..       | 23            | 5,138              | 20            | 14,042             | 15            | 5,939              | 19            | 5,214              | 17            | 5,120              | 23            | 8,167              |
| 3   | Deeds of sale ... ..     | 1,047         | 3,13,972           | 1,051         | 3,12,438           | 1,145         | 3,32,395           | 1,371         | 4,60,522           | 1,457         | 4,76,423           | 1,564         | 5,39,725           |
| 4   | Wills ... ..             | 16            | 1,863              | 20            | 150                | 16            | 1,030              | 17            | 1,482              | 21            | 1,745              | 15            | 1,403              |
| 5   | Miscellaneous ... ..     | 783           | 94,108             | 1,229         | 1,24,514           | 1,103         | 1,31,278           | 1,204         | 1,66,693           | 1,202         | 2,25,810           | 1,517         | 2,16,790           |
|     | Total ... ..             | 3,823         | 11,43,863          | 4,459         | 12,70,075          | 4,602         | 13,86,295          | 5,319         | 16,91,197          | 5,645         | 18,58,804          | 5,880         | 18,53,457          |
| 6   | General Stamps ... ..    | .....         | .....              | .....         | .....              | .....         | 27,549             | .....         | 30,708             | .....         | 29,268             | .....         | 26,317             |
| 7   | Court fee Stamps... ..   | .....         | .....              | .....         | .....              | .....         | 40,875             | .....         | 42,803             | .....         | 42,803             | .....         | 44,949             |

Unlike the four British districts mentioned above, these figures refer to all classes and not to agriculturists alone, and do not include documents below Rs. 50 in value, as their registration is not compulsory. They are, therefore, practically useless for our present purpose, and we have to fall back on Mr. Woodburn's average. Taking the peasants' annual debts to be only 80 instead of 93 per cent. of the total assessment, it amounts annually to 16 lacs of rupees, for which, at Rs. 15 per cent., they have to pay Rs. 2,40,000 as interest. In Mr. Woodburn's table, the value of money bonds is 40 to 50 per cent. of that of mortgage ones. Adding 40 per cent. to twelve lacs, the average value of mortgage bonds in our territory, the total annual borrowings come nearly to the same figure, namely, Rs. 16,80,000.

Thus 15 lacs may be safely assumed to be the annual debt of the cultivators in the territory, and the interest they have to pay, annually to the Sowkar on old and current debts comes to Rs. 44,25,000—interest on old debts of 280 lacs at 15 per cent., Rs. 42,00,000; interest on current debt of 15 lacs at 15 per cent., Rs. 2,25,000.

This is a little more than double the total assessment of the territory, *i.e.*, for every rupee the cultivator pays to Government, he has to pay Rs. 2 as interest to the Sowkar. If the rate of interest can be reduced to 9 per cent., the cultivators' burden will be lighter by Rs. 16 or 17 lacs, which will be available for land improvement. If the State were to undertake a thorough agricultural inquiry, like the industrial, and ascertain from every village, not only the actual debts even approximately, but also the amount of mortgages, the number of peasant proprietors at present-existing, the respective numbers of occupants cultivating their lands and not doing so, the number cultivating as tenants or sharers, the net area under different crops, the total average production, possibilities of increasing it, current fallows, net irrigated area, extent of irrigable area, extent of reclaimable land, area double cropped, possibilities of introducing new crops and new implements, means of improving the breed of cattle and sheep, means of improving fodder and irrigation, &c., &c., it will be greatly useful for devising means for the improvement of agriculture, and also for relieving the agricultural classes; or much of the information specified above can be still more systematically and less expensively collected by holding a Cadastral Survey simultaneously with the approaching Revision Survey.

Causes of Indebtedness. 16. The following causes are among those which tend to make borrowing a necessity with the Rayot:—

1. The assessment on land is generally fixed by the Revenue Survey department according to the quality of the soil. It may be assumed to be from one-fourth to one-tenth of the average produce. Taking it to

be one-sixth, the Rayot, if he happens to be the proprietor of the land, pays more than one-sixth of the produce to Government, one-sixth goes towards the expenses of his cultivation, and less than two-thirds are left to him for the maintenance of his family. When the land does not belong to him, and the proprietor pays the assessment, he has to pay more than half the produce, in the case of inferior land, and two-thirds in the case of superior land, to the proprietor, and, from the remainder, he has to pay the expenses of cultivation, and to maintain his family. Thus, in the case of those who own land, more than half the produce, and, in the case of those who cultivate land belonging to others, much less than half, is left to the Rayot, which is hardly enough for subsistence, and expenses.

2. Better facilities for transport, and the abolition of transit duties have removed the check on the export of grain, natural or artificial. The demand for produce having also increased, and having to pay assessment and interest in coin, the Rayot cannot help selling off the produce and exporting it as soon as it is harvested, without even provision being made for the monsoon; in a majority of cases, he has to borrow grain and money on condition of paying 25 per cent. for four months.

3. The area under irrigation being limited, as stated before, more than  $\frac{2}{3}$  of the cultivators are without work for four, if not six, months in the year. These used to find employment, and were able to provide for the rainy season, when public works were extensively carried on in the State. But with the number of such works now declining, and the railway monopolising most of the carrying traffic, neither they, nor their carts, can find enough work, and there is no other alternative left but borrowing at usurious interest for short terms.

4. The rainfall is now more fitful than before, the strain of overpopulation on the soil is great, and the land is cultivated over and over again, and is seldom allowed rest. Consequently, the yield is also less. Out of ten years, the produce of a piece of land is below the average in three or four, above it in only one or two, and at it in the rest. In other words, in every ten years there are generally two or three years that are bad, when the cultivators must either borrow to maintain their families, or find some other employment which is not forthcoming, as they like to stick to their houses and dislike immigration.

5. The great rush on agriculture, brought on by want of other industries, has made competition so keen among the cultivators, that a peasant's family seldom gets enough land to cultivate, and to maintain itself throughout the year.

6. The agricultural population of the territory is 689,568 and the area cropped is 1,084,330 acres. This gives an average of 1.5 acres per head,



or 7·8 acres per family of 5 members. Assuming 10 bushels or 4 maunds as the average produce per acre, the total yield for a family is about 31½ maunds. If the cultivator is the proprietor of the land he tills, he has 15 or 16 maunds left, but if he has cultivated another's land, he will only have left 10 or 11 maunds at the most.

According to the standard of consumption per head fixed by Government, namely, 7 maunds by weight, or 3½ maunds by measure, this produce is not only insufficient for food, but leaves clothing, salt, and other necessaries to be procured from other sources, as also the provision for manure, cattle, etc., to say nothing of the extraordinary expenditure required for marriages, etc., for which debts have to be unavoidably contracted, as a cultivator cannot cheaply carry on his avocation without a family. His wife cooks his food and helps him in the field, and his children tend his cattle, and do other work, for which he would have to employ servants. The picture of the Rayot's extravagance in marriage and other such expenses is often overdrawn, for the average expenses of a Kumbie marriage seldom exceed Rs. 60 or 70.

17. Under the former unsettled Government of the territory, the assured possession and enjoyment of land were unknown. Survey Tenure. Though various kinds of land-tenures existed, any land, whatever the tenure under which it was held, could be taken from its owner, and given to another person at the sweet will of the ruler. Even Mirasdars or hereditary holders of land were summarily ousted to make room for others. The Rayot was subject to many other taxes, in addition to the land-tax, which last, however, was lower than now. These circumstances deterred improvement in agriculture, and very little new arable land came under the plough.

When the survey was introduced, and all other taxes abolished, and the possession and enjoyment of land assured for 30 years at fixed rates, under a stable and settled Government during British Administration of the province, the immediate results were the occupation of more arable waste, the extension of irrigation, and the partial improvement of land. Security of tenure, increase in the population, improved means of communication, and a rise in prices have all contributed to the occupation of between 4 and 5 thousand acres of arable waste on an average every year. The new system of tenure has not, however, been free from disadvantages. Under the old system, not sure of the possession of his land, the Rayot could not get large debts from the Sowkar on its security. Now, he looks upon the occupancy-holding as the source of unlimited credit on which to borrow. As prices rose, the means of transport increased, the competition for land became keener, and the wages of labour, also increasing, in the end increased his wants and made his habits more luxurious.

Though many of the old taxes and cesses, which were not rigidly collected, were abolished, their place was taken by the Stamps and Registration fees, and rigid rules of forest conservancy, which all threw additional burdens on the Rayot, driving him to borrow at usurious rates of interest, first on the security of his holdings, and, as the burden became unsupportable, eventually to sell it. This unrelieved indebtedness has gradually deprived the majority of the cultivators of their privileged status under the survey, and made them practically tenants-at-will, holding their lands at high rents on a precarious tenure. Accurate information about the condition of occupancies in the province is not available, i. e., it is not exactly known how many occupants of the land are cultivating their lands, how many are not, and how many cultivate lands simply as tenants and sharers. From cursory inquiries made, it would, however, appear that perhaps a little more than one-third of our survey occupants cultivate their own lands, take interest in their holdings, and invest capital in them. Large occupants, holding more than 50 acres, often let out the whole or portions of their lands to sub-tenants. The leases are short, varying from 5 years to one, and the rents demanded range as high as 3, 4, or 5 times the assessment, according to the quality of the land. These sub-tenants have no *status* under the Bombay Land Revenue Code, which applies to this territory. There is no legal provision against rack-renting or eviction. The holder can also claim the assistance of revenue authorities for the realization of rents and dues. The competition for land is so excessive, that the tenant undertakes to pay more than it is possible to do, and thus rents rise, and the under-holder contents himself with a bare living.

The remaining two-thirds of the Rayots do not enjoy the full ownership of their holdings. Most of them have mortgaged their lands with possession, and others have sold theirs, preferring this way of temporarily saving themselves from the Sowkar's heavy burden to paying high interest from year to year.

The total number of holdings in the territory is 75,345, their analysis being as follows as given in the *Gazetteer*:—

| Land.               | Holdings. |
|---------------------|-----------|
| 1—5 acres. ... ..   | 35,362    |
| 6—10 „ ... ..       | 16,787    |
| 11—20 „ ... ..      | 12,778    |
| 21—50 „ ... ..      | 7,800     |
| 51—100 „ ... ..     | 2,145     |
| 101—200 „ ... ..    | 370       |
| 201 and more ... .. | 103       |

How these holdings have been passing from the Rayots' hands into those of the Sowkars, by mortgage or sale, may be gathered from the follow-

ing number of mortgages and sales, quoted from the registration statistics for the last-13 years :—

| Years.   | Mortgages for Kolhapur Proper and Feudatory States. | Sales for Kolhapur Proper and Feudatory States. |
|----------|---|---|
| 1881—82  | 1,717   | 437   |
| 1882—83  | 1,616   | 469   |
| 1883—84  | 1,597   | 517   |
| 1884—85  | 1,955   | 602   |
| 1885—86  | 2,655   | 797   |
| 1886—87  | 2,718   | 937   |
| 1887—88  | 3,006   | 1,090   |
| 1888—89  | 2,460   | 1,269   |
| 1889—90  | 2,651   | 1,250   |
| 1890—91  | 2,951   | 1,384   |
| 1891—92  | 3,506   | 1,629   |
| 1892—93  | 3,742   | 1,751   |
| 1893—94  | 3,526   | 1,880   |
| Total... | 34,100  | 14,012  |

The mortgages have doubled, and the sales more than quadrupled, themselves at the end of the period. More than 80 per cent. of these transactions must refer to land. Taking only half the number, that is, 50 per cent., as referring to land, about 17,000 holdings by mortgage, and 7,000 by sale, *i. e.*, 32 per cent. of the total number of holdings, would appear to have been transferred from the Rayots to the money-lenders. In the course of the last 5 years alone, land worth Rs. 19,45,745 has so changed hands. This process, going on all round, has been virtually expropriating the cultivators from their ancestral holdings. Though the Rayots do get all this land from the Sowkars to cultivate, and also the money for improvements and manure, such cultivators form a body of what are called cottier-tenants living on the soil, holding on short leases and at rack-rents which can, in good years, leave little more than bare subsistence, with no interest in the land, or motives for industry, or enterprise either. Whatever it may be under the permanent settlement, under the Survey Tenure, such transfer of landed property is not desirable, being prejudicial to the improvement of agriculture.

18. Want of education, which, practically speaking, is almost total, is another cause of the woe and misery of the Rayots. Hardly 5 or 6 per cent. of the cultivators know the elements. There is no disability harder to bear than ignorance and its penalties. The Rayot will be able to help himself out of half his difficulties, if he were only educated. As it is, the darkness of ignorance makes him hopeless, paralyzes his efforts, and places him at the mercy of the tax-gatherers and the Sowkars. His refuge is the villag Kulkarni, and the Sowkars, both of them always eager to fatten at his expense. He cannot know exactly how much assessment and local cess he has to pay, and, when he has paid them, he cannot ascertain whether the whole of what he has paid has been correctly booked. When he borrows, he cannot see by himself if the exact amount he takes from the Sowkar, and the rate of interest agreed upon, are entered in the bond. He cannot calculate interest, nor can he keep an account of what he pays to the Sowkar from time to time. If he is oppressed by the village authorities, or other officers, he cannot put his complaints in writing to seek redress in higher quarters. At every step he has to depend on others, and suffer the consequences of such dependence. The State may partly be proud of having done much to remove the disability under which the Rayot labours in this direction, but much still remains to be done. Last year Rs. 1,45,720 were spent on education in the Kolhapur State proper, of which 51,679 were for higher education, and 9,066 for middle class education, leaving only Rs. 64,456 for primary education, besides an indirect expenditure of Rs. 20,513 on school buildings, &c. The details of this expenditure on primary education consist of:—

|  | Rs.    |
|--|--------|
| Vernacular Boys' Schools ... ..                    | 44,865 |
| Indigenous School ... ..                           | 2,102  |
| Technical School. ... ..                           | 3,524  |
| Girls' Schools ... ..                              | 8,903  |
| Training Schools for Masters and Mistresses ... .. | 5,062  |
| Total.....   | 64,456 |

Deducting from this sum Rs. 33,000, or one-third of the local cess, specially levied for the purposes of education and other local public works, and about Rs. 8,064 realized from fees in primary vernacular schools, the net amount spent by the State from imperial funds is Rs. 23,000, which is indeed poor so far as primary education is concerned. Besides this, the five feudatories spent about Rs. 2,300. The number of towns and villages in the territory is 1,079, of which only 168 villages and towns are provided with State schools, and 39 with indigenous schools. The total number of schools in the territory, including 40 aided indigenous schools, is only 270, of which 241 are for boys, and 29 for girls. The percentage of schools to the number of towns and villages is about 25, which is decidedly higher than that in the whole presidency.

But on the other hand, about 850 villages in the territory are without any means of education provided by the state. The number of children of school going age below 15 years are, according to the last census, 3,51,716, of which 1,81,526 are boys and 1,70,392 girls. But the number attending all denominations of public schools is 8,012, *i. e.*, 5.1 per cent. of the total number of school-going age. This means that more than 94.9 per cent. of the children are growing in ignorance.

19. The chief points of the foregoing review may be summed up as under:—

Summary of the previous review. (1) The cultivated area, including double cropping, shows an advance of about 13 per cent.

But the land is overcrowded, the available culturable waste is small, and the margin of further production is narrow.

(2) The area under irrigation has increased a little less than one per cent. of the whole cropped area. The present irrigated area is only 3.3 per cent. of the cropped area, but there is room for increasing it.

(3) The general style of cultivation, and the quality of the plough-cattle discover deterioration. Ploughing, manuring, and the application of restorative methods have not much improved. About 80 per cent. of the area is cropped without manure, and more than 96 per cent. is unirrigated.

(4) Under this deteriorating system of culture, the soil is getting exhausted, and the out-turn per acre is gradually diminishing. The area under current fallows is steadily growing.

(5) The Rayots' margin of means is narrowing, owing to increasing public taxation, and his growing indebtedness.

(6) The net addition of public burdens has been more than 7 lacs during the last 23 years.

(7) The Rayot is sunk in deep debt, and his credit being low and disorganized, and the state not giving any relief, he has to pay 17 or 18 lacs more of interest to the Sowkar every year than he ought or needs.

(8) The survey tenure with 30 years' settlement does not allow a full and complete measure of property in land.

Only 30 or 35 per cent. of the survey occupants enjoy land, and cultivate it. The rest of the cultivators are a vast rack-rented tenantry, without interest in the land.

(9) Lastly, the Rayot is labouring under the disadvantages of ignorance, which winches his seeing his way to get out of his difficulties.

The foregoing analysis of the present condition of agriculture, and of the cultivating class, suggests the remedial action that might be taken. The improvements that can be possibly made in agriculture have been already

indicated. What the Rayot wants is (1) that his position may be made more secure than it is under the present settlement, (2) that he might be secured from over competition in the field, (3) that he might have some relief from growing taxation, and (4) especially from the pressure of his growing indebtedness, and (5) that he might be helped to get over his utter ignorance.

20. Before discussing the remedies above suggested, it must be admitted that the State has not been an unconcerned spectator of this low state of agriculture, and the agricultural classes. It realizes its full responsibility in the matter, and is always prepared, in generous sympathy, to take measures, as far as it lies in its power, for the improvement of agriculture, and the relief of the agricultural classes, and to maintain the agricultural industry in its highest efficiency. It has been making efforts in many ways to help the Rayot, and to promote the interest of agriculture. Some of these may be mentioned by way of illustration.

Though it has not yet introduced any legislative measure, like the Deccan Agricultural Relief Act, the Kolhapur Civil Procedure Code does not empower the Civil Courts to sell the lands of the judgment-debtor in execution of decrees, nor to imprison him for failure to pay the decreed debt; the utmost that the courts can do in such cases is to hand over the possession of the land, if it is specifically mortgaged, to the creditor, till the debt is paid off, giving along with it no proprietary right in the same. The debtor is at liberty to take back his land at any time by paying the amount of the decree. But, through ignorance, the agricultural-debtors generally sell, and thus part permanently with, their lands when they are made over to the creditors. Likewise, no house required for the residence of a judgment debtor, nor cattle and agricultural implements required for agricultural operations, are liable to be sold in execution of the decree of the Civil Court, unless they have been specially assigned as security for payment of the decreed debt, and declared by the court as liable to sale. But the cultivators themselves seldom care to take the benefit of these liberal provisions. Service Inams and other Inam lands held for special purposes are similarly exempted.

Vast sums have been spent on the development of communication by rail and road, for connecting the rural parts with the large centres of industry and trade, and thus extending the market for agricultural and other produce. In the course of the last 13 years, a sum of more than 20 lacs has been spent on roads, the total length of which was 223 miles in 1884-85, and is now about 350. All the rivers on trunk roads have been bridged.

The amount spent on the State Railway exceeds 23 lacs. The railway mileage open is 29 miles. Many more roads are still under construction, or in contemplation, as also the project of connecting the sea-coast by rail to Kolhapur.

A large system of forest conservancy is being elaborated and pushed on under expert hands. This is ultimately to benefit agriculture and the agricultural classes. There are now more than 400 square miles, *i. e.*, more than 14 per cent. of the total area of the Province, under reserved and protected forests. The reserves of fuel and fodder, which will directly benefit agriculture, are increasing. It has been estimated that one-fourth of the area of a country is required to be under forest, to ensure the requisite modification of soil and climate in favour of agriculture. The area under forest in the territory is capable of an increase. As a large extent of land which ought to be under forest has been reserved for Kumri or ash cultivation, this reserve can be afforested when manufacturing, agricultural, and forest industries are introduced and developed as proposed elsewhere, to give employment to those who now live by Kumri cultivation.

Though Tacavi advances are offered from the Public Treasury under liberal rules to needy Rayots at a low rate of interest, *viz.*, 6 per cent. per annum, for the purchase of cattle and seed, and purposes of land improvement, the cultivators are deplorably backward in availing themselves of them. In 1892-93, Rs. 5,600 only were so advanced.

A large Agricultural Cattle and Horse Show is held at Chinchali every year, when prizes are awarded for the best agricultural products and best cattle, horses, and sheep, and printed directions about manure, cattle breeding, shoeing of horses, &c., are occasionally disseminated.

Three students have been specially trained at the Agricultural College at Saidapeit. One of these is in charge of a model agricultural farm attached to the High School, and the other two are in the Revenue and Forest Departments. The establishment of the latter has had a useful addition in a man who has learnt Forestry in the School at Dhera Dhun. Other students from the State have been likewise trained in veterinary science at the Bombay Veterinary College. A large veterinary dispensary has been established at the Capital, under the supervision of one of these, where cattle are gratuitously treated, and the other has been put in charge of the horse, cattle, and sheep breeding departments maintained by the State. There is a dairy machine, and a trained man to work it. Various seeds are likewise tried at the model farm, and distributed gratis to the cultivators for trial; and last, but not least, an Industrial Survey of the State, perhaps the first of its kind in India, has been made, and information, collected about the indebtedness of the agricultural classes, with a view to remove the pressure of population on agriculture by developing the existing industries, and, if possible, by introducing new ones, and also to see how far it is possible to relieve the Rayots by re-organizing his credit.

But it is very disheartening to find that the Rayot, on whose behalf and  
Rayots' apathy. for whose benefit the State is doing so much, and is  
prepared to do more, shows great apathy, and neglects to avail himself of the valuable and needful aid placed within his reach,

declining help though helpless. He does not take advantage of the legislative relief conceded to him, or of the executive measures taken in aid of his calling either.

This apathy of the Rayot makes one often despair of ever improving him. But it is simply the result of his ignorance. Whether or not he appreciates the efforts made by the State and co-operates with it, the latter must work in his interests as well as its own.

21. We shall now turn to the five remedies suggested above for his relief.

The extension of the term of the Survey Settlement to a much longer period than 30 years is become a necessity, owing to an exhaustive system of agriculture, and a rapidly advancing population. Revisions of assessment at short periods are deterrent to the Rayots' investment. The magic of property can alone supply the stimulus, and some form of permanent or at least longer tenure is indispensable.

A change from annual to decennial, and from decennial to 30 years' settlement has done much good; there is no doubt, therefore, that a change from 30 to 50 years' settlement, if not a permanent one, will result in greater improvement of land and agriculture. It is only a sense of longer proprietary possession, and immanity of agricultural improvements from taxation, that can induce a peasant proprietor to invest money in land, to grow rich crops, and to form fresh soils from Mál and stony land by conveying earth in baskets.

Side by side with such a settlement, the tenancy law must be modified and improved, as a check on unprincipled and excessive sub-letting, rack-renting, and eviction. Where agriculture is the chief occupation of the mass of the people, and population overcrowds the land, the tendency to sub-let holdings at rack-rents, and live on the difference between it and the assessment, is very strong.

22. Overcrowding of the land can only be counteracted by the introduction and development of non-agricultural industries, to draw off the superfluous numbers. Till this is done, the pressure will continue and increase much to the prejudice of the rayot, in spite of other means of relief. [The State, during the last 45 years of British management, has attempted improvements in many directions. But none of these, it is to be regretted, had for its object the assistance of proper industrial development. On the contrary, many of the useful urban and rural industries, which used to give employment to a large number of people, were allowed to disappear and dwindle away. Many small handicrafts, which maintained a respectable number, have died out.

There is no counter-balance in other industries to the overwhelming quantity of agriculture, and perhaps there may be few provinces which are so entirely dependent on agriculture as the Kolhapur territory.



23. When the position of the rayot is assured by a longer settlement, and an improvement in the tenancy law, and when Banking facilities. the strain of over-population on agriculture is removed by the introduction of non-agricultural industries, it will next be necessary, in order to ensure agricultural improvement on his part, to provide for him cheap banking facilities under a proper organization of credit. His borrowing necessities must be recognized, and it is unfair, under these circumstances, to leave him entirely at the mercy of the money-lender.

The probable amount of the debt of the agricultural and industrial classes is known to be between 2 and 3 crores of rupees in the whole territory. It is impossible for the State itself to be able to advance all this money to the rayot without borrowing itself, or depositing the savings of the whole population in a Savings Bank of its own. But it is not desirable, under any circumstances, for the State to do this, as the measure is likely to become an engine of oppression and extortion in the end. The true aim of State action should not be to supplant the Marwadi or the money-lender, who is a necessary integral part of a healthy industrial system, and to destroy his business, which would be to injure that system in its vital point, but to place his relations with his debtors on a more equitable basis.

The money-lending classes are not so black as they are often painted to be, though it cannot be denied that they often charge usurious interests on their loans. This is because the credit of the borrowing classes is very low, and there are no facilities for recovering the interest and the loan, without having recourse to the costly and uncertain processes of civil courts. The Sowkar has often, therefore, to incur losses in many cases, and the high interest is intended to recoup these losses. As a matter of fact he seldom realises on an average more than 12 per cent., though the rates in his books are from 18 to 30 per cent.

Lack of capital is not the real cause of this. Several lacs of rupees have been deposited in the different postal savings banks in the territory, and still larger amounts invested in Government Securities. The investments of the Kelhapur State and its feudatories amount to several lacs. Judging from the recent conversion operations, any rate of interest higher than 4 per cent. will satisfy the depositors and holders of promissory notes, provided the investments are secure. Besides this, there is plenty of money lying idle for want of safe investment in the territory. There are many capitalists in the province, who are ready to lend on the security of gold at 5 or 6 per cent. But all this money has no outlet. At present, those who have money to invest, and wish to do it profitably and safely, have to hunt after needy persons, to inquire into their solvency and the title to the property to be taken as security. Thus neither the borrowers, nor the capitalists, nor the saving classes, can gain their object cheaply and expeditiously.

All this money, and much more, ought to be at the service of the agricultural and industrial enterprize; and it would be so but for want of *viâ media*. There is a gulf, which separates capital and land and industrial enterprize, which has ruined the rayot, the manufacturer, and the artizan, and their industries. Ignorance, want of confidence, and habits of combined efforts between those who save and those who work, prevent the free flow of capital to fertilize the fields of industry. The State alone, with its limitless command of resource and organization, is in a position to bridge over this gulf. It can easily encourage the formation of some credit institutions, corporations, co-operative institutions, or banks, such as agricultural or industrial banks, by affording special facilities to lend money, at a fixed low rate of interest, to the agricultural and industrial classes. Several lacs of rupees, which the rayot might save in this way, would go to his acres, and every one would be the better for it, including the money-lender who has begun to suffer by the general depression of the agricultural industry.

24. This system has been most successfully tried on the continent of Europe in Hungary, Austria, France, Italy, Switzerland, and Belgium during the last 50 years and has been fully described by the Honourable Rao Bahadur Justice Ranade in a paper which he read at the first Industrial Conference, held at Poona in 1891 on the Re-organization of Credit in India (published in the Industrial Quarterly Review of the Western India).

Various Schemes :  
European Scheme.

Without going into the details of the European systems, I may briefly state the lines on which these institutions can be started in our small province, to relieve the borrowing classes, and what special facilities and privileges the State should give to these banks or credit institutions, and by what rules it should bind them :—

(1) The bank should give loans on mortgage of land, house or other immovable property, at a rate of interest not exceeding 9 per cent. to begin with.

(2) The loans should be limited to half the assessed value of the property.

(3) It should also advance at the same rate of interest, or a little more, small sums to the artizans and manufacturing classes, such as weavers, spinners, dyers, potters, brass, copper, and iron-workers, &c., on personal credit on satisfying itself about it.

(4) The bank should be empowered to receive deposits at a rate of interest not exceeding 6 per cent., but varying according to the period of withdrawal.

(5) Repayment of principal should be spread over a period of from 20 to 30 years.

The facilities and privileges which the State ought to give should be as follows:—

(1) It should exempt the bank transactions from all stamp and registration duties.

(2) It should also permit the bank to foreclose or sell the mortgaged and also the unmortgaged property of its debtor in default of payment, without requiring it to go to the Civil Courts to take its chance of justice with all their delays and costs.

(3) The State should advance to the bank from 2 to 6 lacs of rupees at 6 per cent. interest for the first 5 or 10 years, or may deposit some of its savings at even a lower rate.

(4) It should lend the help of its officers for assessing the value of the property to be mortgaged, the bank paying the necessary expenses.

(5) It should order an inspection of the bank's accounts with a view to secure obedience to rules, and allow the bank to deposit all its cash over and above, say Rs. 10,000 in the Huzur or Taluka Treasury.

(6) It should also assist in recovering interest and instalments of the principal through the village officers, the bank paying the State a certain percentage on the amount collected, for such assistance.

The bank or the corporation can find funds which will be forthcoming to any amount, if the State only promises to organize the agency and set it going.

The principle is simply to interpose the bank between the borrower and the lender, to guarantee the lender, who will deposit his money in the bank, against all risk, and thus to secure a reduction of interest, so as to help the borrower with loans at a slightly enhanced rate, to provide for a reserve fund for expenses of management, and for spreading the payment over a longer period, say of 20 or 25 years, to allow the bank's claim a priority over all others, after the bank has enabled the indebted agriculturists to pay off their former debts and to free their lands from all encumbrances, an exemption from all duties, and a certain and speedy execution. If a bank, or some such institution be started at Kolhapur, and branches opened at the headquarters of the principal divisions as necessities arise, it will not only help the rayots, but also the capitalists and saving classes.

Such private banks would not perhaps do for all parts of the territory. They would suit best such advanced Talukas as Karwir, Alte, and Shiro. In backward Talukas, like Bhudargad and Panhala, and outlying villages, direct State Agency may be necessary, or the banks will require more assistance.

An effort was once made in this presidency to start an Agricultural Bank on the lines laid down above. The scheme was supported by the local Government and also by the Government of India, but was vetoed by the Secretary of State in ignorance of the specialities of Indian life and its necessities.

The central shops, recommended elsewhere, for supplying raw materials to the manufacturers, and for buying and selling their products, can also conduct these banking transactions for the industrial classes.

25. I may here allude to an attempt made in this direction in Behar, without any help from Government. Mr. Myhu and his brother have started an agricultural bank at Jagadishpur in Behar, and give loans to their rayots at 12 per cent. The system followed is briefly this:—

The applicant for a loan is required to fill up a form stating the area of his holding, the amount of his debt, if any, secured or unsecured, and the names and residence of his creditors. The correctness of these particulars is then thoroughly investigated through a trustworthy officer, and the investigation is supplemented by personal inquiries on the part of the proprietor himself. If the secured debts are disproportionately large, and the margin for further borrowing small, the loan is refused. When the applicant owes unsecured debts, the creditor is called up, the accounts are gone into, and an arrangement is made, the proprietor either paying off the debt, or giving the creditor an undertaking to discharge it in three or four annual instalments. No advances are made to rayots who have running accounts with other money-lenders, whose debts are unadjusted. If the results of this inquiry are satisfactory, a loan is granted at 12 per cent. For some years, no bonds were taken from the borrowers, but latterly, as a precaution against large outstanding debts becoming barred by limitation, bonds have been taken for all sums exceeding Rs. 100. As Messrs. Myhus know the area and capabilities of each man's holding, the average cost of cultivation, the number of workers and mouths in each family, and the character of the family as regards thrift, they are in a position to do this with a fair approach to accuracy, certainly with much greater accuracy than the Government or any ordinary bank can. This bank has carried on its operations for the last 10 years. The figures about the total amount advanced, the number of borrowers, and the area over which the operations were carried on, have not been published, but it appears that the average amount advanced in each year was Rs. 1,25,472, the average debt balance outstanding at the end of each year, Rs. 91,132 on account of principal, and Rs. 1,241 on account of interest, the average amount realised each year, Rs. 1,20,000, and the average debit balance carried forward, Rs. 1,09,005. Though interest is charged at 12 per cent., the amount actually realised on each sum put in business has

been between 8 and 9 per cent. This may be considered to be a fairly satisfactory return to a lending institution, operating on its own capital, without any deposits to swell its profits.

Another similar attempt was made in this direction at Kutra in the North-Western Provinces, also unaided by the State, nor owing its existence to the voluntary co-operation of a number of wealthy men in the shape of a company. It does not include under its operation a very wide tract of country. But nevertheless it is a most useful institution, and, as a good and hopeful beginning in the attempt of rescuing the rayot from the meshes of the greedy Shylocks, its history and present status are indeed very encouraging. Seth Raghabar Dayal, Talukdar of Moizudinapur in Satapur, started three years ago an Agricultural Bank, solely for the benefit of his tenants living in his Taluka alone. Till July 1894, twelve per cent. was the rate of interest. Since then it has been reduced to 9 per cent. Loans are given for the purchase of plough cattle and seed, for payment of rent, for payment of debt due to other Mahajans, and for other necessary purposes such as marriages, &c. An advance up to Rs. 10 is made without security to tenants of good character, while the amount is increased to Rs. 225 to those who pay an annual rent of Rs. 100 for their holding. All larger loans are granted on hypothecation and security. In 1892-93, Rs. 16,108 were advanced with hypothecation, and Rs. 1,608 without it. In 1893-94, the respective figures amounted to Rs. 18,884 and Rs. 781. In the last year, the number of applicants to whom loans were advanced was 1,360. Rupees 9,900 were advanced for plough cattle, Rs. 462 for seed, Rs. 210 for irrigation, Rs. 4,260 for payment of rent, Rs. 3,916 for payment to other Mahajans, and Rs. 916 for domestic necessities. The number of applicants is on the increase. The promoters of the bank think that "tenants have abundantly benefitted by the low rate of interest charged by this bank in liberating them from the clutches of the exorbitant money-lenders." The bank had no occasion to resort to civil courts to recover the loans, and this fact proves the fairness of the dealings of the bank, and the honesty of the tenants. Several European officers of Government have examined the records of the bank, and testified to the care and accuracy with which the management is conducted.

26. The Mysore Scheme of an Agricultural Bank, announced at the last Dasara assembly by the Divan, is also worthy of consideration as having its own merits. After a careful study of various schemes that have been tried in Europe to bridge over the gulf between the capitalist and the agriculturist, the Mysore Government have come to the conclusion that the plan which offers the best prospect of success is that of mutual co-operation. "The most successful system," said the Diwan, in referring to the project in his Budget Speech, "has been proved to be that, in which the agriculturists, forming themselves into an association on strictly co-operative principles, substituted their

united credit for that of the intermediate body, thus securing the fullest returns for their own credit as agriculturists, and doing away with the profits of the middle men." The Mysore Government has determined not only to afford facilities for the formation of such associations under the designation of agricultural banks, but to assist them with deposits of public money on favourable terms, till their credit is fully established. The facilities principally consist of exempting bank operations from stamp and other duties, providing for special registration, ready recovery of loans, the custody of funds in public treasuries, and for the periodical audit of accounts.

To give a better idea of the scheme, I may quote the substance of the draft rules which were laid before the Representative Assembly of Mysore.

Every such bank is to be an association of land-holders enlisted on a basis of mutual interest, with the object of not dividing profits, but of conferring on its members the benefit of cheap money by the substitution of the united credit of the whole body for the individual credit. There is to be no share capital, but the funds of the association are to be derived from the deposits of members, from loans raised, and, to a trifling extent, from a small irrecoverable fee to be charged for membership. Loans are to be made to the members only on the security of their own character and resources, and those of two other members, and only for approved purposes, such as the redemption of land from existing mortgages, the liquidation of existing debts of any kind, the purchase of agricultural stock, the extension of holdings, and the like, and, in exceptional cases, for domestic requirements, and are to be for less than one year when they are for ordinary purposes of cultivation. Loans are to be made at such moderate rates of interest as will leave a margin for expenses of management, and provide for the gradual formation of a reserve. The reserve fund is to be used for the common purposes of the members, but is not to be divided, and, if the bank is wound up, is to be used for some purpose of local utility. The business of the bank is to be conducted by an executive committee, and the members are to give their services gratuitously.

The scheme looks in many respects a promising one. It can work only when at least 40 or 50 per cent. of the land owners are found to be educated. On the whole, ordinary credit banks on the European model, agricultural banks on the Poona model, or co-operative agricultural banks on the Mysore model, will suit the large and more advanced Zilla or Taluka stations, but not be able to reach outlying villages, unless the state can help the formation of village committees to work as agents for the banks. These may consist of the Patil, the Kulkarni and a few large land-holders. The farmers may address themselves to these committees in the first instance, and it should be their duty and interest to keep an eye on the affairs of the borrower, as soon as a loan has been advanced to him. The president

of the committee in each village centre should guarantee the repayment of the loan, while its members should be collectively responsible to the bank, furnish securities, and get  $\frac{1}{2}$  of the interest for their labours.

In addition to the system of Taccavi advances, the Land Improvement Loan Act of 1883 is worth being introduced in the province. For making advances and loans under these two, the state should work through such villages committees, formed at various village centres. It has been found that the system does not work well through the Mamletdars, and the rayots do not avail themselves of the advantages offered by it.

Under any scheme, a preliminary liquidation of all previous debts ought to be a necessary precedent condition. It may be carried out on a voluntary or compulsory basis. Under the Talukdar Act of 1862, whenever the Talukdar's debts and liabilities exceed 5 times the average rent and other income, the management of his estate is taken over by Government. This provision may be made applicable in this province to the Inamdars, whose debts are growing fearfully in many cases.

27. As for the education of the rayots, primary education ought to be extended as far as possible. The Kolhapur State proper spends about Rs. 25,000 from its own funds for primary and technical education. It ought to spend as much more. Likewise it ought to spend for this purpose half the amount of the local cess instead of  $\frac{1}{3}$ , as at present. Roads, bridges, dharmashalas, wells, and other petty public works are doubtless desirable things in themselves. Very large amounts have been spent on these works of public convenience during the past years, and it now behoves the State to consider whether part of this expenditure might not be advantageously diverted to the extension of educational facilities for the people. A knowledge of the rudimentary elements is essential to the well-being of the masses, and every effort must be made to raise the cultivating classes intellectually.

Every village having a population of 500 or 600 souls, or more ought to be provided with a school, and as the number of such villages is only about 350, the additional funds referred to above can provide schools to almost all such villages in the course of the next 20 years. In such small villages, especially when the population is less than 1,000, education ought to be free to the cultivators paying the local cess, i. e., even the small fees now charged may not be imposed.

28. In all village schools teaching up to IVth Vernacular standard instruction in elementary agriculture should be at once introduced by making the reading of an agricultural primer, such as is taught in the primary schools in Bengal and the Central Provinces, compulsory.

Secondly, the State should give instruction in agriculture in the local training school. According to the Training College Code, every teacher should pass either in agriculture, in drawing, or in one of the mechanical arts. There being no provision for teaching agriculture in the school, no teacher has yet passed in agriculture. This is not fair, and an agricultural teacher should be attached to the training school, or the agricultural master attached to the High School can be asked to teach a few hours in a week with some additional remuneration, and to give practical instructions in the model farm attached thereto. In this way all future teachers will be qualified to teach the agricultural primer in the vernacular schools. Again, by appointing men who have passed the U. S. F. examination of the Bombay University with agriculture as their optional subject to the Taluka schools, superior agricultural instruction at these high class vernacular schools can be given.

29. But above all, in order to prove the possibilities of development  
 Agricultural Depart- as regards the extension and improvement of agri-  
 ment. culture, to look after the agricultural interests of  
 the province, to guide the action of the State in useful and needful  
 directions, and to watch the progress of the reforms that might be sanc-  
 tioned and introduced, there must be a well organized department of agri-  
 culture under responsible and expert control. With this object, I have  
 already advocated in a former part of the report a separate department  
 for agriculture and trade, and the establishment of experimental farms in  
 the districts.

B. P. MODAK.

*Kolhapur, 23rd January 1895.*



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**APPENDICES.**

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APPENDIX A.

Statistical Information about Industries at

इलाहा

पेटा किरा तालुका

गांव

येथील चालू धंद्यांविषयी माहितीचे पत्रक.

| <p>क्र. सं.<br/>No. Name of the Place.</p> | <p>धंद्याचे नांव.<br/>Name of the Industry.</p> <p>भाग, भट्ट्या व कारखाने वगैरेची संख्या.<br/>No. of Looms, Furnaces, Factories, &amp;c.</p> <p>उभारण्यास लागलेले भांडवल.<br/>Capital invested in erection.</p> <p>चालविण्यास लागणारे भांडवल.<br/>Working Capital.</p> <p>दरसाल तयार झालेल्या मालाची किंमत व मुख्य जिनसांची नावे.<br/>Value of the articles turned out and names of the principal articles.</p> <p>सरासरी शेकडा नफा काय पडतो.<br/>Profits per cent. after deducting interest and labour.</p> <p>काम करणाऱ्यांची संख्या.<br/>Hands engaged.</p> <p>दररोज मजुरी काय पडते.<br/>Average wages per day from the lowest to the highest.</p> <p>इंग्रजी माल आल्यापासून किती लोक रिकामे झाले.<br/>Hands disengaged by English manufactures.</p> <p>किती भाग वगैरे बंद झाले.<br/>No. of factories &amp;c. stopped.</p> <p>धंदे वाढविण्यास काय उत्तेजन पाहिजे<br/>Encouragement wanted to increase the Industries.</p> <p>कोणत्या सुधारणा होण्याजोग्या आहेत<br/>What improvements are possible.</p> <p>माल कोठे खपतो.<br/>Markets for the goods.</p> <p>धंदा चालविण्यास कशा माल कोठला व काय घेतात.<br/>Raw materials used.</p> <p>शेता.<br/>Remarks.</p> |
|--|--|
| <p>१</p>                                   |  |
| <p>२</p>                                   |  |
| <p>३</p>                                   |  |
| <p>४</p>                                   |  |
| <p>५</p>                                   |  |
| <p>६</p>                                   |  |
| <p>७</p>                                   |  |
| <p>८</p>                                   |  |
| <p>९</p>                                   |  |
| <p>१०</p>                                  |  |
| <p>११</p>                                  |  |
| <p>१२</p>                                  |  |
| <p>१३</p>                                  |  |
| <p>१४</p>                                  |  |
| <p>१५</p>                                  |  |
| <p>१६</p>                                  |  |

## APPENDIX B.

## QUESTIONS.

1. What rate of interest have the cultivators to pay when they are required to borrow money for the improvement of land or other agricultural operations ?
2. What rate of interest have the industrial classes to pay ?
3. Is the capital required available at the place ?
4. What is the number of money-lenders at the place, and what is their capital ?
5. Are any of those at present engaged in agriculture prepared to enter other industries if any be started ?
6. How is the increased population employed ? How many more people are engaged in agriculture than necessary ?
7. What wages does an agricultural labourer get ? What are the average gains of a cultivator per month ?
8. Are the cultivators too much in debt ? What percentage of the cultivators are not indebted ? What is the total amount of debt of the agricultural and of the industrial classes at the place ?
9. If advances are made to the agriculturists and industrial classes at 6 or 7 per cent., can they repay it easily ? Why does such a small number of agriculturists take advantage of Tuccavi advances ?
10. What is the average rate of wages of a common labourer at the place ?
11. Have not the people been benefited by the Revenue Survey and its assessment in the place of the old multifarious taxes ?
12. What is the number of carts, (1) private (2) public (those that are let) ?

## APPENDIX

Statement showing the state of the different industries

| No. | NAME OF THE DIVISION.                   | Population. | Weaving.      |                |                        | Cumblee-weaving. |                |                        |
|-----|---|-------------|---------------|----------------|------------------------|------------------|----------------|------------------------|
|     |   |             | No. of looms. | Hands engaged. | Value of the products. | No. of looms.    | Hands engaged. | Value of the products. |
| 1   | 2                                       | 3           | 4             |                |                        | 5                |                |                        |
|     |   |             |               |                | Rs.                    |                  |                |                        |
| 1   | Karwir ... ..                           | 151,597     | 575           | 1,459          | 2,14,169               | 98               | 215            | 16,625                 |
| 2   | Panalla ... ..                          | 116,967     | 249           | 709            | 71,842                 | 47               | 110            | 9,995                  |
| 3   | Alte ... ..                             | 108,883     | 700           | 1,704          | 2,13,504               | 74               | 130            | 10,382                 |
| 4   | Shirol, including Rayabag.              | 105,665     | 300           | 660            | 93,103                 | 126              | 338            | 9,137                  |
| 5   | Gadgilraj, including Katkol and Kapashi | 141,075     | 510           | 1,444          | 1,83,180               | 142              | 318            | 28,122                 |
| 6   | Bhudargad... ..                         | 94,290      | 39            | 102            | 7,400                  | 36               | 67             | 6,225                  |
| 7   | Vishalgad ... ..                        | 31,247      | 6             | 12             | 900                    | 27               | 35             | 1,150                  |
| 8   | Bawda ... ..                            | 43,770      | 39            | 110            | 15,588                 | 72               | 12             | .....                  |
| 9   | Kagal ... ..                            | 53,272      | 137           | 371            | 49,954                 | 29               | 68             | 4,825                  |
| 10  | Ichalkarnji, including Ajra.            | 66,365      | 477           | 1,300          | 1,98,720               | 5                | 10             | 550                    |
|     | TOTAL ... ..                            | 913,131     | 3,032         | 7,871          | 10,48,360              | 596              | 1,343          | 87,011                 |

C.

in the sub-divisions of the Kolhapur Territory.

| Sugar-refining. |        |                       | Oil-pressing.      |        |                       | Pottery. |                |                        | Rope-making. |                |                        |
|-----------------|--------|-----------------------|--------------------|--------|-----------------------|----------|----------------|------------------------|--------------|----------------|------------------------|
| Refineries.     | Hands. | Value of the produce. | Mills or ghancess. | Hands. | Value of the produce. | Kilns.   | Hands engaged. | Value of the products. | Places.      | Hands engaged. | Value of the products. |
| 6               |        |                       | 7                  |        |                       | 8        |                |                        | 9            |                |                        |
|                 |        | Rs.                   |                    |        | Rs.                   |          |                | Rs.                    |              |                | Rs.                    |
| 8               | 166    | 46,250                | 231                | 486    | 1,60,150              | 247      | 735            | 26,471                 | 28           | 81             | 250                    |
| ...             | ...    | .....                 | 98                 | 212    | 50,062                | 174      | 516            | 31,139                 | 45           | 121            | 345                    |
| 37              | 646    | 1,34,450              | 123                | 240    | 1,07,601              | 118      | 365            | 9,235                  | 91           | 137            | 1,133                  |
| 2               | 28     | 3,450                 | 62                 | 161    | 34,930                | 107      | 313            | 9,873                  | 60           | 112            | 500                    |
| ...             | ...    | .....                 | 135                | 262    | 60,595                | 178      | 609            | 18,995                 | 28           | 45             | 1,955                  |
| ...             | ...    | .....                 | 59                 | 112    | 35,480                | 58       | 173            | 3,320                  | ...          | ..             | .....                  |
| ...             | ...    | .....                 | 31                 | 101    | 13,800                | 17       | 33             | 1,045                  | ...          | ...            | .....                  |
| ...             | ...    | .....                 | 57                 | 70     | 1,916                 | 24       | 109            | 326                    | ...          | ...            | .....                  |
| 2               | 4      | 850                   | 54                 | 104    | 32,230                | 85       | 276            | 8,294                  | 9            | 18             | 930                    |
| ...             | ...    | .....                 | 62                 | 123    | 34,620                | 37       | 183            | 6,480                  | 11           | 11             | 250                    |
| 49              | 844    | 1,85,000              | 912                | 1,871  | 5,31,384              | 1,045    | 3,312          | 1,15,178               | 272          | 525            | 5,363                  |

## APPENDIX

Statement showing the state of the different industries

| No. | NAME OF THE DIVISION.                  | Parched Rice-making. |                |                        | Tanning.   |                |                        | Leather      |                |
|-----|--|----------------------|----------------|------------------------|------------|----------------|------------------------|--------------|----------------|
|     |  | Bhatties.            | Hands engaged. | Value of the products. | Tanneries. | Hands engaged. | Value of the products. | Shops.       | Hands engaged. |
|     |  | 10                   |                |                        | 11         |                |                        | 12           |                |
|     |  |                      |                | Rs.                    |            |                | Rs.                    |              |                |
| 1   | Karwir ... ..                          | 42                   | 146            | 23,000                 | 38         | 76             | 12,460                 | 279          | 538            |
| 2   | Panalla ... ..                         | ...                  | ...            | .....                  | 9          | 12             | 2,550                  | 174          | 199            |
| 3   | Alte ... ..                            | ...                  | ...            | .....                  | 35         | 110            | 14,150                 | 177          | 310            |
| 4   | Shirol, including Rayabag.             | ...                  | ...            | .....                  | 15         | 25             | 2,081                  | 212          | 310            |
| 5   | Gadindaj, including Katkol and Kapasbi | ...                  | ...            | .....                  | 13         | 23             | 1,950                  | 144          | 219            |
| 6   | Bhudargad... ..                        | 60                   | 120            | 27,370                 | ...        | ...            | .....                  | 73           | 143            |
| 7   | Vishalgad ... ..                       | ...                  | ...            | .....                  | ...        | ...            | .....                  | 27           | 42             |
| 8   | Bawda ... ..                           | 7                    | 14             | 2,520                  | ...        | ...            | .....                  | 35           | 44             |
| 9   | Kagal ... ..                           | 26                   | 52             | 21,320                 | 6          | 17             | 1,640                  | 103          | 173            |
| 10  | Iohalkarnji, including Ajra.           | ...                  | ...            | .....                  | 22         | 30             | 5,000                  | 35           | 77             |
|     | <b>TOTAL ...</b>                       | <b>185</b>           | <b>332</b>     | <b>74,210</b>          | <b>138</b> | <b>293</b>     | <b>39,531</b>          | <b>1,259</b> | <b>2,055</b>   |

C—contd.

in the sub-divisions of the Kolhapur Territory—contd.

| work.    | Dyeing.                 |        |                | Smithery.               |        |                | Copper-smiths.          |        |                | Karajgar's work.        |        |                |
|----------|-------------------------|--------|----------------|-------------------------|--------|----------------|-------------------------|--------|----------------|-------------------------|--------|----------------|
|          | Value of the pro-ducts. | Baths. | Hands engaged. | Value of the pro-ducts. | Shops. | Hands engaged. | Value of the pro-ducts. | Shops. | Hands engaged. | Value of the pro-ducts. | Shops. | Hands engaged. |
|          | 13                      |        |                | 14                      |        |                | 15                      |        |                | 16                      |        |                |
| Rs.      |                         |        | Rs.            |                         |        | Rs.            |                         |        | Rs.            |                         |        | Rs.            |
| 28,635   | 12                      | 15     | 50             | 91                      | 156    | 1,530          | 8                       | 15     | ...            | 20                      | 32     | 1,721          |
| 3,060    | ...                     | ...    | .....          | 44                      | 66     | ...            | ...                     | ...    | ...            | ...                     | ...    | ...            |
| 15,175   | 4                       | 8      | 925            | 51                      | 76     | ...            | 2                       | 3      | ...            | ...                     | ...    | ...            |
| 6,537    | 2                       | 2      | .....          | 38                      | 66     | 1,925          | ...                     | ...    | ...            | 6                       | 8      | 1,429          |
| 14,745   | 35                      | 60     | 22,000         | 107                     | 152    | 750            | 2                       | 2      | ...            | ...                     | ...    | ...            |
| 9,090    | ...                     | ...    | .....          | 19                      | 41     | 525            | ...                     | ...    | ...            | ...                     | ...    | ...            |
| 1,420    | ...                     | ...    | .....          | 5                       | 8      | 70             | ...                     | ...    | ...            | ...                     | ...    | ...            |
| 1,401    | ...                     | ...    | .....          | ...                     | ...    | ...            | ...                     | ...    | ...            | ...                     | ...    | ...            |
| 16,788   | ...                     | ...    | .....          | 48                      | 79     | ...            | 4                       | 8      | ...            | ...                     | ...    | ...            |
| 5,490    | 24                      | 70     | 1,50,000       | 14                      | 32     | ...            | ...                     | ...    | ...            | ...                     | ...    | ...            |
| 1,02,341 | 77                      | 155    | 1,72,975       | 417                     | 676    | 4,800          | 16                      | 28     | ...            | 26                      | 40     | 3,150          |

## APPENDIX

Statement showing the state of the different industries

| No. | NAME OF THE DIVISION.                   | Founding. |                |                        | Paper-making. |                |                        | Bangadi-making. |                |                        |
|-----|---|-----------|----------------|------------------------|---------------|----------------|------------------------|-----------------|----------------|------------------------|
|     |   | Shops.    | Hands engaged. | Value of the products. | Dungs.        | Hands engaged. | Value of the products. | Shops.          | Hands engaged. | Value of the products. |
|     |   | 17        |                |                        | 18            |                |                        | 19              |                |                        |
|     |   |           |                | Rs.                    |               |                | Rs.                    |                 |                | Rs.                    |
| 1   | Karwir ... ..                           | 5         | 13             | 1,400                  | 3             | 17             | 2,390                  | ...             | ...            | ...                    |
| 2   | Panalla ... ..                          | ...       | ...            | ...                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 3   | Alte ... ..                             | ...       | ...            | ...                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 4   | Shirol, including Rayabag.              | ...       | ...            | ...                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 5   | Gadinglaj, including Katkol and Kapashi | 1         | 3              | ...                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 6   | Bhudargad ... ..                        | ...       | ...            | ...                    | ...           | ...            | ...                    | 3               | 21             | 500                    |
| 7   | Vishalgad ... ..                        | ...       | ...            | ...                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 8   | Bawda ... ..                            | 8         | 16             | 312                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 9   | Kagal ... ..                            | ...       | ...            | ...                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
| 10  | Ichalkarnji, including Ajra.            | 4         | 12             | 850                    | ...           | ...            | ...                    | ...             | ...            | ...                    |
|     | TOTAL...                                | 18        | 44             | 2,082                  | 3             | 17             | 2,390                  | 3               | 21             | 500                    |



C—concld.

in the sub-divisions of the Kolhapur Territory—concld.

| Carpentry. |                |                                   | Gold and Silver work. |                |                                   | Bamboo work. |                |                        | Gunny cloth-making. |                |                                   |
|------------|----------------|-----------------------------------|-----------------------|----------------|-----------------------------------|--------------|----------------|------------------------|---------------------|----------------|-----------------------------------|
| Places.    | Hands engaged. | Value of the articles turned out. | Shops.                | Hands engaged. | Value of the articles turned out. | Places.      | Hands engaged. | Value of the products. | Looms.              | Hands engaged. | Value of the articles turned out. |
| 20         |                |                                   | 21                    |                |                                   | 22           |                |                        | 23                  |                |                                   |
|            |                | Rs.                               |                       |                | Rs.                               |              |                | Rs.                    |                     |                | Rs.                               |
| 336        | 553            | 14,030                            | 143                   | 203            | 1,765                             | 36           | 88             | 4,605                  | ...                 | ...            | ...                               |
| 237        | 433            | ...                               | 60                    | 87             | 1,350                             | 18           | 50             | 2,475                  | ...                 | ...            | ...                               |
| 190        | 275            | 250                               | 86                    | 115            | .....                             | 1            | 3              | 100                    | 1                   | 1              | ...                               |
| 179        | 247            | 7,675                             | 71                    | 88             | 4,600                             | ...          | ...            | .....                  | 3                   | 6              | 200                               |
| 262        | 417            | 2,070                             | 115                   | 150            | 2,400                             | 8            | 16             | 1,175                  | 13                  | 15             | 100                               |
| 83         | 188            | 3,661                             | 37                    | 42             | 735                               | 28           | 53             | 2,600                  | 1                   | 3              | 75                                |
| 5          | 8              | ...                               | 21                    | 26             | .....                             | 11           | 13             | 450                    | ...                 | ...            | ...                               |
| 74         | 92             | ...                               | 57                    | 59             | .....                             | 64           | 67             | 60                     | ...                 | ...            | ...                               |
| 102        | 178            | ...                               | 63                    | 90             | .....                             | 10           | 21             | 1,210                  | ...                 | ...            | ...                               |
| 31         | 68             | 20,500                            | 24                    | 56             | 10,000                            | ...          | ...            | .....                  | ...                 | ...            | ...                               |
| 1,499      | 2,459          | 48,186                            | 677                   | 916            | 20,850                            | 176          | 311            | 12,675                 | 18                  | 25             | 375                               |

## APPENDIX

## STATEMENT of Agricultural

| Number. | NAME OF THE DIVISION. | No. of Villages. | Population. | Area in square miles. | Area in acres.             | Deduct area not available for cultivation. | AREA AVAILABLE |
|---------|-----------------------|------------------|-------------|-----------------------|----------------------------|--|----------------|
|         |                       |                  |             |                       |                            |  | Acres.         |
| 1       | 2                     | 3                | 4           | 5                     | 6                          | 7  | 8              |
| 1       | Karwir ...            | 135              | 151,597     | 287.3                 | 188,120 27                 | 34,734 4                                   | 153,386 23     |
| 2       | Panhala ...           | 202              | 116,967     | 469                   | 299,961 9                  | 91,592 16                                  | 208,368 33     |
| 3       | Alte ...              | 49               | 108,883     | 182.2                 | 139,528 28                 | 19,853 23                                  | 119,675 5      |
| 4       | Shirol ...            | 64               | 105,665     | 311.6                 | 209,344 8                  | 22,314 32                                  | 187,029 16     |
| 5       | Gadinglaj ..          | 166              | 127,849     | 487.4                 | 311,587 17                 | 55,165 33                                  | 256,421 24     |
| 6       | Bhudargad...          | 194              | 94,290      | 488                   | 312,264 1                  | 134,816 0                                  | 177,448 1      |
|         |                       | 810              | 705,251     | 2225.5                | 1,460,806 10               | 358,476 28                                 | 1,102,329 22   |
| 7       | Bawda ...             | 69               | 43,770      | 137                   | 88,998 18                  | 753 34                                     | 88,234 24      |
| 8       | Kagal Senior          | 40               | 53,272      | 128.7                 | 71,317 4                   | 7,429 2                                    | 63,888 2       |
|         | Do. Junior.           | 6                |             |                       | 11,076 34                  | 1,009 33                                   | 10,067 1       |
| 9       | Kapshi ...            | 10               | 13,226      | 35                    | 20,294 14                  | 2,062 12                                   | 18,232 2       |
| 10      | Vishalgad ...         | 66               | 31,247      | 121                   | Information not available. |  |                |
| 11      | Ichalkarnji...        | 78               | 66,365      | 207.9                 | .....                      | .....                                      | .....          |
|         |                       | 269              | 207,880     | 629.6                 | .....                      | .....                                      | .....          |
|         |                       | 1,079            | 913,131     | 2,855.5               | .....                      | .....                                      | .....          |

## D.

*and Debt Statistics.*

| FOR CULTIVATION. |       | DEDUCT CULTURABLE WASTE. |             | OCCUPIED AND CULTIVATED AREA. |             |
|------------------|-------|--------------------------|-------------|-------------------------------|-------------|
| Assessment.      |       | Acres.                   | Assessment. | Alienated.                    |             |
| Rs.              | a. p. |                          |             | Acres.                        | Assessment. |
| 9                | 10    | 11                       | 12          | 13                            |             |
| Rs.              | a. p. | Rs.                      | a. p.       | Rs.                           | a. p.       |
| 3,63,536         | 13 10 | 5,472                    | 4 11        | 29,554                        | 36 8 10     |
| 2,83,182         | 12 2  | 44,528                   | 11 6        | 20,333                        | 0 2 3       |
| 3,22,321         | 15 11 | 6,395                    | 2 7         | 31,124                        | 10 1 1      |
| 3,30,075         | 13 7  | 13,099                   | 35 0        | 41,775                        | 26 10 0     |
| 3,23,802         | 8 8   | 10,843                   | 36 4        | 115,557                       | 12 11 8     |
| 2,38,060         | 10 4  | 39,208                   | 24 1        | 25,414                        | 33 7 1      |
| 18,60,980        | 10 6  | 119,547                  | 32 1        | 263,730                       | 35 8 11     |
| 39,445           | 4 11  | .....                    | .....       | 3,701                         | 8 13 6      |
| 1,10,672         | 10 0  | 1,610                    | 34 0        | 15,794                        | 19 4 0      |
| 14,517           | 0 0   | 5                        | 2 0         | 1,955                         | 19 2 0      |
| 29,941           | 4 0   | 68                       | 36 0        | 8,089                         | 36 10 0     |
| .....            | ..... | .....                    | .....       | .....                         | .....       |
| .....            | ..... | .....                    | .....       | .....                         | .....       |
| .....            | ..... | .....                    | .....       | .....                         | .....       |
| .....            | ..... | .....                    | .....       | .....                         | .....       |

## APPENDIX

## STATEMENT of Agricultural

| Number. | NAME OF THE DIVISION. | OCCUPIED AND CULTIVATED AREA. |               |                        |                |
|---------|-----------------------|-------------------------------|---------------|------------------------|----------------|
|         |                       | State.                        |               | Total culturable land. |                |
|         |                       | Acres.                        | Assessment.   | Acres.                 | Assessment.    |
|         |                       | 14                            | 15            | 16                     | 17             |
|         |                       |                               | Rs. a. p.     |                        | Rs. a. p.      |
| 1       | Karwir ...            | 118,359 23                    | 2,35,761 0 1  | 147,914 19             | 3,59,681 8 11  |
| 2       | Panhala ...           | 143,506 34                    | 1,93,813 15 5 | 163,840 22             | 2,67,348 1 8   |
| 3       | Alte ...              | 82,155 33                     | 2,06,793 3 3  | 113,280 3              | 3,19,308 4 4   |
| 4       | Shirol ...            | 132,183 35                    | 2,20,004 13 7 | 173,929 21             | 3,24,898 7 7   |
| 5       | Gadinglaj...          | 130,020 6                     | 1,50,642 5 8  | 245,577 28             | 3,20,064 1 4   |
| 6       | Bhudargad ...         | 112,824 24                    | 1,44,818 14 2 | 138,239 17             | 2,24,362 5 3   |
|         |                       | 719,050 35                    | 11,51,834 4 2 | 982,781 30             | 18,15,662 13 1 |
| 7       | Bawda ...             | 84,533 15                     | 34,631 7 5    | 88,234 24              | 39,445 4 11    |
| 8       | Kagal ...             | 46,482 29                     | 65,545 14 0   | 62,277 8               | 1,10,685 2 0   |
| ...     | Do. Junior ...        | 8,106 20                      | 9,301 6 0     | 10,061 39              | 14,515 8 0     |
| 9       | Kapshi ...            | 10,073 10                     | 10,426 0 0    | 18,163 6               | 29,927 10 0    |
| 10      | Vishalgad ...         | .....                         | .....         | .....                  | .....          |
| 11      | Ichalkarnji ...       | .....                         | .....         | .....                  | .....          |
|         |                       | .....                         | .....         | .....                  | .....          |
|         |                       | .....                         | .....         | .....                  | .....          |

D.—contd.

and Debt Statistics—(continued).

| Irrigated area. | No. of wells. | LIVE STOCK. |        |                    |                   |                          |        |                  |
|-----------------|---------------|-------------|--------|--------------------|-------------------|--------------------------|--------|------------------|
|                 |               | Ballocks.   | Cows.  | She-<br>Buffaloes. | Ho-<br>Buffaloes. | Horses,<br>Mares,<br>&c. | Asses. | Sheep and Goats. |
| 18              | 19            | 20          | 21     | 22                 | 23                | 24                       | 25     | 26               |
| 7,082 26        | 1,682         | 24,332      | 16,934 | 10,060             | 12,596            | 1,093                    | 132    | 18,734           |
| 3,766 29        | 917           | 23,771      | 18,797 | 11,512             | 13,019            | 962                      | 120    | 23,893           |
| 9,138 23        | 3,459         | 18,164      | 8,348  | 6,894              | 11,665            | 1,035                    | 487    | 32,267           |
| 2,673 15        | 1,457         | 14,658      | 7,583  | 3,010              | 6,868             | 879                      | 502    | 32,912           |
| 3,943 26        | 1,459         | 27,316      | 17,526 | 9,669              | 11,801            | 803                      | 290    | 32,360           |
| 1,508 5         | 507           | 21,536      | 20,920 | 9,207              | 12,801            | 251                      | ...    | 8,370            |
| 28,112 34       | 9,481         | 129,777     | 90,258 | 50,352             | 68,750            | 5,023                    | 1,531  | 148,536          |
| .....           | 354           | 11,157      | 10,886 | 2,860              | 3,303             | 61                       | ...    | 3,529            |
| 3,634 10        | 812           | 9,560       | 5,706  | 3,021              | 5,451             | 333                      | 83     | 9,025            |
| 535 22          | 82            | 14,021      | 949    | 467                | 774               | 32                       | ...    | 1,529            |
| 522 2           | 128           | 2,303       | 1,327  | 1,283              | 883               | 85                       | 40     | 3,051            |
| 9 20            | 96            | .....       | .....  | .....              | .....             | ...                      | ...    | .....            |
| 2,142 37        | 1,075         | .....       | .....  | .....              | .....             | ...                      | ...    | .....            |
| 6,308 29        | 2,547         | .....       | .....  | .....              | .....             | ...                      | ...    | .....            |
| 34,421 23       | 12,028        | .....       | .....  | .....              | .....             | ...                      | ...    | .....            |

## APPENDIX

## STATEMENT of Agricultural

| Number. | NAME OF THE DIVISION. | Total animals. | Grazing ground in acres. | Ploughs. | CARTS.  |                 |        | Rate of wages. |
|---------|-----------------------|----------------|--------------------------|----------|---------|-----------------|--------|----------------|
|         |                       |                |                          |          | Riding. | To carry loads. | Total. |                |
|         |                       | 27             | 28                       | 29       | 30      | 31              | 32     | 33             |
|         |                       |                |                          |          |         |                 |        | As.            |
| 1       | Karwir ... ..         | 83,931         | 2,749 18                 | 7,242    | 218     | 2,947           | 3,165  | 3              |
| 2       | Panhala .. ...        | 92,174         | 6,857 38                 | 9,533    | 152     | 2,105           | 2,257  | 2              |
| 3       | Alte ... ..           | 78,860         | 4,255 7                  | 2,129    | 113     | 2,444           | 2,597  | 3              |
| 4       | Shirol ... ..         | 66,412         | 3,264 37                 | 1,922    | 82      | 1,658           | 1,740  | 3              |
| 5       | Gadinglaj ...         | 99,765         | 5,925 0                  | 7,932    | 88      | 3,153           | 3,241  | 2½             |
| 6       | Bhudargad ...         | 73,085         | 2,016 23                 | 11,262   | 30      | 1,180           | 1,210  | 3              |
|         |                       | 494,227        | 25,069 3                 | 4,020    | 723     | 13,487          | 14,210 | ...            |
| 7       | Bawda ... ..          | 31,796         | .....                    | 4,527    | 3       | 151             | 154    | 2½             |
| 8       | Kagal ... ..          | 33,259         | .....                    | 2,659    | 28      | 1,149           | 1,177  | 2½             |
| ...     | Do. Junior ...        | 5,172          | .....                    | 539      | 1       | 182             | 183    | 2½             |
| 9       | Kapshi ... ..         | 8,972          | .....                    | 821      | 7       | 386             | 393    | ...            |
| 10      | Vishalgad ...         | .....          | .....                    | ...      | ...     | ...             | ...    | ...            |
| 11      | Ichalkarnji ...       | .....          | .....                    | ...      | ...     | ...             | ...    | ...            |
|         |                       | .....          | .....                    | ...      | ...     | ...             | ...    | ...            |
|         |                       | .....          | .....                    | ...      | ...     | ...             | ...    | ...            |

## D.—concl'd.

## and Debt Statistics—(concluded).

| No. of Capitalists. | Capital.    | Debt of the Agriculturists. | Rate of Interest. | Debt of the Industrial Classes. | Rate of Interest. | Total debt of Agricultural and Industrial Classes. |
|---------------------|-------------|-----------------------------|-------------------|---------------------------------|-------------------|--|
| 34                  | 35          | 36                          | 37                | 38                              | 39                | 40   |
|                     | Rs.         | Rs.                         | per cent.<br>Rs.  | Rs.                             | per cent.         | Rs.  |
| 654                 | 15,90,640   | 22,24,151                   | 12 to 24          | 2,02,222                        | 18 to 24          | 24,26,373  |
| 436                 | 9,13,295    | 24,87,465                   | 24                | 57,959                          | .....             | 25,45,424  |
| 356                 | 8,79,100    | 14,24,500                   | 12 to 24          | 1,16,300                        | .....             | 15,40,800  |
| 237                 | 9,90,500    | 12,85,900                   | .....             | 84,025                          | .....             | 13,69,925  |
| 964                 | 18,85,757   | 23,89,875                   | 18 to 24          | 2,57,241                        | .....             | 26,47,116  |
| 299                 | 8,80,378    | 10,22,476                   | 24                | 29,043                          | 24                | 10,51,519  |
| 2,946               | 71,39,666   | 1,08,34,367                 | .....             | 7,46,790                        | .....             | 1,15,81,157  |
| 388                 | 2,39,800    | 2,39,450                    | 24                | 14,012                          | 24                | 2,53,462   |
| 411                 | 6,23,690    | 9,60,236                    | 25                | 35,151                          | 25                | 9,95,387   |
| 93                  | 3,02,200    | 1,06,207                    | .....             | 2,500                           | .....             | 1,08,707   |
| 141                 | 5,16,000    | 1,53,400                    | 24                | 2,900                           | 24                | 1,56,300   |
| 386                 | 7,47,500    | 2,93,200                    | .....             | 54,800                          | .....             | 3,48,000   |
| 280                 | 10,00,800   | 8,51,350                    | 18 to 24          | 1,94,840                        | 18 to 24          | 10,46,190  |
| ...                 | 34,29,990   | 26,03,843                   | .....             | 3,04,203                        | .....             | 29,08,046  |
| ..                  | 1,05,69,656 | 1,34,38,210                 | .....             | 10,50,993                       | .....             | 1,44,89,203  |