

attached to the institute. These women come for training from all over the presidency. There is a small hostel for men where there are at present eighteen in residence.

The women do the winding for the weaving, and embroidery, lace, machine work, etc., and the men the weaving. The latter earn on an average Rs. 20 per month. Today there are boys doing attractive and difficult designs, who knew nothing about weaving two years ago. Every month close on Rs. 3000 is paid to the workers and Rs. 500 to the staff. This money is all raised from sale of goods; we have no other source of income apart from a very small grant from the Department of Industries.

Markets. As you know the success of an enterprise like this depends largely on the market. A market does exist for the right articles. Much yet has to be done in organising and in the developing of markets in connection with village industries, and much can be learned from Japan and China and the survival of small industries in Japan would repay careful study. When visiting wholesale houses in London I found that China and Japan are in much closer touch than India. We must not be afraid of producing goods for export; many countries thrive on exports and there are hand-woven fabrics being sold in London to-day at fabulous prices which could be made in India on a much cheaper scale. That means that hand-woven fabrics from India would find a ready market in London and other places if the organisation existed.

Organisation needed. Why cannot, what has been done in Ikkadu in a small way, be repeated in other places in South India? It is important to keep the people contented in the village instead of crowding into the cities and this is the only way. There is on the one side a vast army of idle people with natural skill of craftsmanship and there are so few ready and willing to organise this vast store of labour. Why aren't there more people ready to study village problems and help to alleviate the distress? Village Industries on Ikkadu lines in important places throughout the Presidency would be a great help to village people.

THE SILK INDUSTRY AND RURAL PROSPERITY IN KOLLEGAL TALUK

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Sericulture as a Home Industry. In a programme of rural reconstruction, the problem of a suitable home industry finds a prominent place. Many of the cottage and village industries in India, have declined, having succumbed mainly to large scale industrial organisations. But sericulture, as a cottage industry, has right through

withstood the competition of any such organisation. It is because, it has always been a poor man's industry, allied to the main profession of agriculture. It is, in fact, best followed with success where wages are low, holdings small and the agriculturist has enough time between one crop and another. Sericulture, as a home industry wherever it can be taken up, has few equals. It has all the advantages of hand spinning of cotton but is less exacting and more profitable. This industry, has therefore, come as a boon to Kollegal, where dry cultivation is the rule, the ryot is poor and has time to spare between crops.

It is my intention in this paper to emphasise the very important part which sericulture has played in the rural economy and prosperity of Kollegal taluk of Coimbatore district. This taluk is unique in being the only centre in the whole presidency, where the industry forms the main subsidiary occupation of the people. It is carried on under purely cottage conditions by all agricultural classes, in almost all the villages.

Suitability of Kollegal for Sericulture. Kollegal is a part of the Mysore plateau, 2000 to 2500 feet above sea-level, is sub-tropical in climate and is admirably suited to the rearing of silk-worms and the production of silk. The suitable temperature, for the industry, is said to be between 75° and 80° F, and humidity between 50 and 70 per cent. These conditions are mostly satisfied by Kollegal and Mysore. In fact, Kollegal owes its industry to Mysore where it was established in the days of Hyder Ali and Tippoo Sultan. Since those days, the industry has been so intermingled with the agricultural economy of this taluk that every phase of the industry has told on the prosperity of the people.

Importance of Kollegal as a Silk producing Centre. Though only a taluk in Madras province, Kollegal ranks among the principal silk producing centres of India. The Coimbatore District gazetteer (1933) states that in previous years, Kollegal's silk exports ranged from 50 to 60 lakhs of rupees. Kollegal was the chief centre of supply of raw silk for this presidency till the imports of silk from China and Japan and of artificial silk became a menace. The importance of this industry will be better understood, when it is stated that, according to the Tariff Board report, the number of persons depending on silk-worm rearing in Madras, was 1,20,000 in 1931—32. Surely an industry that supports this number, is important for the whole province.

The Branches of the Industry. To understand the economic significance of this industry, it is essential to deal in a brief manner with the branches of the industry, so as to bring out the economic aspect of each branch, as it affects the rural population.

Kollegal, along with Mysore, has a distinct race of silk-worms. These worms are multivoltine, fed on mulberry leaf and produce

greenish cocoons, yielding a beautiful lustrous silk of excellent quality. The industry divides itself into three branches, viz. (1) The cultivation of mulberry with the purpose of obtaining the leaves for the silk-worms, (2) The rearing of the silk-worms from the egg-stage to the cocoons and (3) Reeling of silk-thread from the cocoons.

Cultivation of Mulberry: The mulberry garden is the principal, capital investment of a silk-worm rearer. His other requirements are few. It can be said in general, that mulberry occupies one-tenth of the total area in the taluk. A silk-worm rearer, generally, has his own mulberry garden. The cultivation of mulberry commends itself to the ryot for important reasons. Once planted, a mulberry plantation is kept on for 8 to 10 years. Cultivation is easy and not expensive. For his intercultivation, the Kollegal ryot is used to his indigenous, labour-saving, bullock-drawn implements called *guntas* in Kanarese. On careful investigation, I have found that it costs about Rs. 28 per year to cultivate an acre of mulberry. In years of insufficient rainfall a well established mulberry garden withstands drought better than other crops. In such years, rearing silk-worms has saved the ryots from the consequent acute general distress. In spite of the present poor price of silk, there has been no inducement to the cultivator to substitute entirely the food crops for the mulberry because in these years of trade depression, the fall in prices of food crops has been greater than that of raw silk, though serious the latter has been. Mulberry is thus a money crop to the Kollegal ryot. It provides him, in the form of cocoons, cash for his cultivation expenses and his necessities of life. For his food, the ryot generally grows his own food crops. It is estimated that an acre of mulberry produces about 4000 lb. of leaf per year, enough to produce about 300 lb. of cocoons or say 12 *maunds* worth nearly Rs. 100 at the present prices.

Silk Worm Rearing. According to the census report of 1931, there are at least 5000 families engaged in rearing of silk-worms. This works out to nearly one-third of the population of the taluk. The rearing of worms is carried on side by side with the cultivation of mulberry. While the farmer looks after the cultivation of mulberry, the rearing is looked after by the women and children of his family at home, who furnish all the labour required. The rearing room is a part of the house. It is this fact that makes Sericulture a perfect home industry. In this connection, the following passage, occurring in the Census Report of 1931, about the Silk industry in Kollegal is interesting:—“Women folk play a considerable part in the rearing of silk-worms and the care and vigilance that they bestow upon the rearing of worms are largely responsible for the considerable progress that has been made in the industry.” In that report, it is estimated that for every 1000 men, 2108 women are engaged in silk-worm rearing. The women in this taluk are thus an economic asset.

Thus, this industry, by making use of the family labour which would otherwise go to waste and by also employing the spare time of the agriculturist, turns the waste into wealth. This is a gain, not only material, but also moral. The initial equipment necessary for an average grower costs about Rs. 12.

The care with which the worms have to be looked after, from the hatching of eggs to the spinning of cocoons,—especially with regard to feeding with the right quality and quantity of leaves, at proper frequency, according to age and with regard to stopping and resuming feed at the proper time before and after moulting,—cultivates a certain alertness of mind and a spirit of co-operation in the family, without which the rearing will not be successful.

The scrupulous cleanliness with which the worms have to be handled and the need for cleanliness in the surroundings (without which, the worms cannot thrive), promotes a sanitary sense in the village. The silk-worm litter is carefully collected and fed to cattle and is very much relished by them. It is rarely thrown away in the manure pit.

Seed Production. In Kollegal, as in all other places, where Sericulture is established, the production of seed cocoons is a separate branch of the industry and this gives employment not only to those who produce the seed but also to the vendors who buy from them and sell to the rearers.

There is another branch of this seed-production, which has a scope for employment of trained men in the rural areas to the great benefit of the rearers. I allude to the production of disease-free seed. The silk-worms are particularly prone to diseases, especially Pebrine, which is hereditary and contagious. This disease once threatened the extinction of the industry in Europe, especially in France, which was saved, by the timely researches of that great scientist, Pasteur. It is, by his method of elimination of every diseased laying, whose female moth by microscopic examination shows the existence of pebrine, that the disease-free seed is produced. But for the control of this disease, the industry might not have been what it is to-day. It has thus to be understood that the production of disease-free seed is most important in sericultural development. The Government have therefore concentrated their efforts in this direction. They have established farms at Kollegal, Hosur and Palmaner for producing disease-free seed. They have also stationed a party called the Peripatetic Rearing party at Kollegal who distribute this disease-free seed, buy cocoons themselves from reputed vendors, prepare and distribute disease-free layings, and also induce the ryots to get their seed, tested for disease. The demand for disease-free seed is being increasingly met every year by the sericultural section of the Department of Industries. Thus, while, in the year 1931-32, the proportion of disease-free seed

supplied, to the total requirement, was only about 10%, it can now be said that it is more than 40%. There is nearly 60% still to be supplied, which offers a scope for private enterprise. This in fact, is encouraged by the Government, who give financial aid to private grainages. According to the available statistics, 1,260,000 lb. of cocoons worth Rs. 4,20,000 were produced in 1931—32.

(iii) *Reeling*. This is a separate and important branch of the industry. These cocoons, as differentiated from those of Eri silk-worms, consist of a continuous thread of silk-fibre. Reeling consists in unwinding these continuous threads from a sufficient number of cocoons at a time and joining them together to give a combined thread of desired thickness. This is done by a hand-driven *charka*, which reels the thread from the cocoons placed in a basin of hot water. In 1931-32 the number of such country reeling machines in Kollegal, was 500, giving employment to about 2000 people. Besides the professional reeler who reels the silk thread from the cocoons, women are employed to turn the reel and men to supply water and fuel to the basins. From the statistics available, it is learnt that 90,000 lb. of reeled silk worth Rs. 4,50,000, were produced in 1931—32.

Besides the raw silk that is produced, the reeler gets the silk-waste as a by-product which has till now been exported to foreign countries for being converted into spun silk. But with the establishment of a spinning plant in Mysore, silk-waste will have an easily accessible market. The statistics show that there was 45,000 lb. of silk waste in 1931-32 worth Rs. 8,000.

Weaving. The last branch of the industry is the hand-loom weaving which is also a cottage industry. The handloom weaver, not only in this taluk, but also in the other principal weaving centres in the presidency, was dependent on the raw silk, mainly of Kollegal, till the cheap foreign silk and artificial silk lured him. The seriousness of the competition from China and Japan will be known from the following, obtained from the Census report of 1931 :—

The imports of raw silk in the presidency in

1915—16 was 5,62,18 lb.

1929—30 „ 8, 25,930 lb.

valued at over 47 lakhs of rupees. Whereas, from the same report, it is learnt that in 1911, out of the 8,00,000 lb. of raw silk consumed in the province, 360,000 lb. was from Kollegal, 3,00,000 from Mysore and only the rest from Bengal and China. As the handloom weaver is the main consumer of raw silk, on him depends to-day the scope of expansion of the industry.

Marketing. Silk is generally marketed through a chain of merchants or commission agents. There is no sorting or grading. The

marketing of silk is thus backward. With higher efficiency in marketing which is bound to come, as a result of establishment of a central marketing organisation, this industry should also benefit.

The decline of this industry, due to foreign competition, was brought to the notice of the Government who instituted an enquiry by the Tariff Board in 1932, which has been helpful to the industry and protection for the present has been given. If such an important and interesting industry should, for any reason, disappear, we shall be losing an industry on which depends the livelihood and prosperity of a large rural population.

To Sum up. (1) Sericulture is a perfect home industry. (2) It occupies an important place in the rural economy of the taluk. But for this industry, the poor ryot of Kollegal, would have been frequently faced with starvation. (3) For the cash, which the agriculturist requires, for his necessities and his expenses between one harvest and another sericulture helps him. At any rate, it gives him credit-worthiness. (4) Apart from the material advantages, the industry induces mental alertness and co-operation. A sericultural village, especially previous to the trade depression had a characteristic atmosphere of life and prosperity and even to-day looks more resistant than an ordinary village, to the havoc of trade depression, irregular rains and unemployment among labouring classes.

The Industry in General. With reference, in general, to the industry in India, there is a great possibility of expansion. It is estimated that India consumes about double the quantity of raw silk which she produces. With better methods of cultivation of mulberry, of rearing of worms, reeling, marketing and a better organisation of handloom weaving there is no difficulty for expansion, as India has all the natural advantages for the industry. In fact, the expansion of silk Industry, in places wherever possible, will open up fresh avenues of employment for the rural population.

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Research Notes.

The White top shoot borer of sugarcane (*Scirpophaga*)

Mention has been made in the previous publications on the top shoot borer of cane about the presence of two species of *Scirpophaga* in South India, at any rate, in the Madras Presidency. These are *S. monostigma* and *S. auriflua* (*S. xanthogastrella*, *S. intacta*, *S. nivella*) the former with a black spot on each of the forewings and the latter without spots. In our recent studies of the pest it was found difficult to distinguish the larval and pupal stages of the two moths and this led us to suspect that there may be only one species after all. The