

ornaments. In the dried form they are sometimes used as an ingredient of snuff. The soft bit used by entomologists for the mounting of insects is also derived from a *Polyporus*. In ancient times dried pieces of *Fomes fomentarius* were used as tinder but with the advent of the cheap match boxes they have gone out of use.

The above are in the main some of the uses of fungi. As scavengers, entomophagocytes and articles of food they are very beneficial to mankind not to speak of their extensive use in industrial and medicinal spheres. To a small extent they are put to domestic and personal uses.

AGRICULTURAL CO-OPERATION WITH SPECIAL REFERENCE† TO WEST COAST.

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The word co-operation means working to-gether. When it concerns agriculture as a business, it should plainly enough mean the working together of farmers. The necessity for the same arises out of the one fact that the large majority of farmers in this country manage small areas. The absence of sufficient capital to work even these small holdings places the farmer within the clutches of an usurious money or grain lender. Thus even if the crops are moderately paying the farmer's resources remain encumbered as he cannot meet the unusually high demand on them. The pitiable condition in which the farmer is placed reaches its climax when the cultivation methods adopted, seeds used and manures applied are poor. Of these, the last item of cultivation expenses largely determines the yield. The inadequate capital which is mostly the result of want of confidence in the business invariably reduces the quantity and quality of the manure applied with the result that the yields are always poor. Under such circumstance the loans taken by him through co-operative societies to finance this unprofitable method of cultivation fail to make him richer. This again becomes aggravated by the fact that the money obtained as loans for agricultural purposes is partly wasted in other unprofitable ways. And the oft-repeated question of over-dues haunt him and his society like a night-mare.

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2. It is therefore high time that we should strive our best to improve the situation and as such let us examine in detail and find out whether the conditions necessary for agricultural co-operation exist in our country as it is at present and see whether we are in a position to take advantage of them and improve the welfare of the farmers.

(a) A knowledge of the agricultural condition of the country is the first requisite.

(b) A knowledge of the needs of the farmers is highly necessary.

(c) The masses must have a certain amount of co-operative training.

(d) A knowledge of the markets is very essential.

(a) Segelcke one of the pioneer workers of co-operation in Denmark first spent a year at Rothamsted before he went straight from there, to take up his work in co-operative methods of business and production which have since dominated Danish agriculture. I quote the Danes as an example as they stand pioneers in agricultural co-operation in the whole world. The work so far done by the Agricultural Department has enabled us to obtain an insight into the agricultural conditions of the country with some knowledge as to the ways and means of making cultivation more profitable. In several cases we have been able to make the crops especially paddy pay more, spending less than what they ordinarily do on its cultivation. I hold back actual figures as they may become an infliction upon you and am prepared to give them to those who want them after the conference.

(b) The needs of the farmer as regards capital, seed and manure etc., supply have been studied to some extent by the workers in the fields of both co-operation and agriculture. As a result of it we have got the co-operative bone crushing works at Nidamangalam, Manure and Implement Society at Pattambi, etc., with many seed unions in this Presidency.

(c) Thanks to the work so far done by the Co-operative Department and the honorary workers thereof in educating the masses in co-operative ideas, we have a very large number of co-operative credit societies working. The enthusiasm evinced by the members thereof and the large army of honorary workers in the field show that the incentive for co-operative work has come to stay. Co-operative credit work to finance an unprofitable business

like the present grain-production of the West Coast especially in Malabar must perplex the workers to some extent. Even the Danes who are the ideal co-operators have experienced failure. Failures have given us very valuable lessons to open our eyes and widen our outlook. They force us to examine the purpose for which the loans are taken and it falls to the lot of the workers to teach the farmer how he should use his capital on cultivation to make the business economical. It is here that we find the need for mass education and to combine the non-credit agricultural work with the credit movement to make them both successful. The need for more propaganda work is brought to the lime-light by a number of resolutions in the various co-operative conferences. Professor Baswani, in his inaugural address at the Co-operative Institute, Karachi, has recently urged the need for peasant schools where farming and weaving are to be taught to encourage co-operative work. These authorities evidently support my view that agricultural propaganda should remain organically connected with rural credit work in this country. On this aspect of the question I had drawn the pointed attention of this conference in my paper on "the place of agricultural improvements in co-operation" in 1924. Later on last year Rao Sahib Mr. V. K. Menon a reputed worker in co-operation, very ably emphasised the point by the way supporting my paper.

(d) Efforts have been made to study the fourth necessary condition for agricultural co-operation, viz., a knowledge of the markets, which is being acquired directly. We may have to enlist the sympathy of the bigger traders in our movement or to commence business ourselves and eliminate the unnecessary number of profit-sharing middlemen as far as possible. A few pieces of business have to be actually done through supply and sale societies before we become better fitted to do the work. We in the West Coast know very well how we could successfully carry on co-operative supply when co-operation and agriculture combined in selling chemicals for spraying against "Mahali" (arecanut disease). This has extended the activities of co-operative work and established an unquestionable faith in spraying against "Mahali" in the mind of the arecanut grower who no more fears the once dreaded "Mahali" disease.

3. Now it is left for us to consider as to how to combine these necessary elements of agriculture and co-operation at every step in one and the same movement and benefit the rural popula-

tion. The idea that co-operation means only credit work must be corrected and the outlook of the village co-operator must be broadened. Sir E. G. Russel of the Rothamsted experimental station says "Science may do much in giving new methods, but in agriculture the determining factors are human and experience shows that history alone gives the key to the human factor. If we know what many have done before in given circumstances and how they did it we know what they can do again." Therefore comparing our present conditions with those existed in other countries before they made considerable progress in agricultural co-operation, we find that we are situated almost similar to what they were in the German district of Neuweid area before the year 1862. It has been described by A. Wuttig in the following terms—"The district is not very fertile and the inhabitants are mostly small peasant proprietors some with sufficient land to graze a single ox or cow. An owner of 10 acres is a rich man. Before the year 1862 the village of (Anhausen) presented a sorry aspect: rickety buildings, untidy yards, in rainy weather running with filth, never a sight of a decently piled manure heap. . . . houses and oxen belonged with few exceptions to Jewish dealers. Agricultural implements were scanty and dilapidated and badly worked fields brought in poor returns. The villagers had lost confidence and hope. They were the serfs of dealers and usurers." Raefeisen's work till about 1888 revolutionised their condition and converted them into a set of happy and prosperous farmers.

4. The masses have been to a large extent taught co-operation, the application of which to agricultural production is the question on hand. Many have told me that we have to copy the Denmark methods of co-operation to advance our co-operative activity especially in agricultural co-operation. But I fear that the incentive or natural instinct for co-operative work which the Danes possess is absent anywhere else. As in other countries we require some driving force from outside to successfully work our societies. Therefore I prefer to shape my scheme on German lines modified by the lessons of the French and Italian methods to suit our conditions. I mean to suggest Dr. Haas' model of Provincial Verbands and its affiliated societies especially as regards the relationship of the societies with the central union. The object of our unions must be identical with those detailed about the French co-operative syndicates. Probably Italian methods of

working have to be adopted to allow the societies and unions to have free scope to do business according to the needs of the farmer members. In Denmark, France, Ireland and other places dairy farming, vine production, poultry farming and the like guided the movement, as these branches of agricultural work had greater facilities there. We have to adopt the Neuwied Model of activities as we are mostly grain producers and our salvation consists chiefly in improving grain production through co-operative activities with certain side lines of farming as will be detailed hereafter.

5. In the first place we have to educate the co-operators in agricultural improvements basing their methods of cultivation on economic lines. The changes in their methods necessary for the purpose must be adopted by the members of a society which must commence to work on the lines of the German "Kasinos" societies with hardly any credit work to do to begin with. However we have even at the outset to shape them to serve as supply societies for the affiliated farmers which the "Kasinos" in later days became. Probably we would also require them to be affiliated to a central supply society. Thus we may be able to put together small farmers into bigger units as societies such that they derive all the advantages of the big farmer in studying new agricultural methods and procuring their supplies etc. Such societies remain related to one another through the union. The present credit societies and unions may function as such. Some of the present societies good enough for the purpose may be chosen to work like this or new societies may be formed with this object in view apart from credit work. The membership of the new society should be open to all farmers who undertake to manure their lands properly, to use selected seeds as much as possible and to dispose off their produce through the society or at its instance. We have to remember the one important fact that propagandists and the active office bearers who were very successful in credit work may not be successful in this line of activity. Therefore as in the Danish country, members of the one variety of society like the credit society may be allowed to become members of these agricultural societies or workers in the agricultural non-credit branch of a society must be chosen separately. As this new work involves a good deal of trouble and some expense, small monthly subscriptions may have to be raised to meet the incidental charges of a recurring nature and to pay the workers unless it be possible for the Government to depute officers to work them. Full-time

paid workers are necessary to run this pioneer sort of business. The workers must all be made responsible to a supervising Government control. Because what Raifeisen did in the Rhine colony has to be done by the Government in this country.

6. Probably the best place to start such a movement will be from one of the well-chosen centres with a Middle School in a purely rural area where credit work through co-operative means has made sufficient headway. The actual rural propagandist must be in charge of the School which can be imparting an ideal rural education with sufficient agricultural bias. It may also be continuation classes. The guardians of the pupils may off and on be invited to take interest in the rural work; even night schools may be started for adults of the labouring classes—thus adopting every means possible to concentrate work and make it affective.

7. These agricultural societies have also to function as sale societies in the disposal of the produce to the best advantage of the producer. The larger business that we have will be in grains. Grain societies requiring to store grains till the market becomes favourable find it necessary to have store houses involving considerable capital. When this is wanting, the small granary of the producer itself may serve as the storehouse of the society and on the security of the grains so stored money advances will have to be made to the producer to keep him on till his grains are sold. Such advances, with any previous loans standing in his name, will have to be recouped when the grains are sold. Some penalty has to be imposed on the farmer who betrays the confidence placed in him. These societies have also to find more paying crops to grow and other productive lines of work like poultry, sheep and cattle rearing, dairying, flower and vegetable cultivation and such side lines of farming as are suitable to the locality and to the members thereof. Mention has already been made of this in my paper on, "Side lines of farming" read in this hall in 1923. This will enable the farmer to find paying occupations during the slack season and also to find work for the ladies of the house-hold.

8. The aim of the movement must be to attach the rural population to their homes and to the soil by using every means in their power to restore the dignity of agriculture and make it more remunerative besides introducing profitable side lines of farming. Such an association of farmers guided by a rural worker may in course of time be able to establish among the members all kinds of co-operative societies and even provident societies and also

societies to improve the moral, intellectual and professional side of their lives and improve the material condition. One of the chief aspects of the supply work of such societies is to produce and distribute good seed to the members. A second item of work will be to prevent waste of the available manurial resources especially by adopting better methods of preserving cattle manure and supplement the supply of manure from outside sources or by production themselves. A third sphere of activity will be the introduction of improved implements.

9. I fear that I have been going too much into the details of the work of an ideal agricultural co-operative society. Further details can be found out when such societies are organised and worked. I do not at all suppose that it is a simple matter to start and work such societies, nor do I hold that useful agricultural co-operative societies to suit our needs cannot take any other form. What I have attempted to do in this paper is but to place before you some of my views on a subject of great importance to the farmers and of serious interest to both co-operators and agricultural propagandists. I wish that the discussion which my paper may arouse would enable us to throw more light on the subject bringing out more useful and practical suggestions for the prosperity of the country.

A SHORT NOTE ON A MONSTROSITY IN PADDY.

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The development of a paddy plant consists in a regular succession of processes which is the same for all the plants of the species to which paddy belongs. A paddy grain when sown germinates, produces roots and shoot, both of which grow. The shoot portion consists of stems and leaves which grow vegetatively till the activities are turned to a different manner in the production of earheads or panicles bearing spikelets (flowers), which, after fertilisation and ripening, become the seeds—the starting point for the next generation. This is the life cycle of a paddy plant. In the different stages of growth, certain deviations from the normal type may occur, due to some complex causes which are not definitely understood. Such deviations are known as ‘Monstrosities.’