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# Why the Village Movement?

(A plea for a new economic order in India)

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WARDHA, C. P.

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# WHY THE VILLAGE MOVEMENT ?

## Part I

### Historical Background

#### CHAPTER I

#### Stages of Evolution

In the most primitive stages of both men and animals, economic activity is the result of an urge to satisfy primary needs, such as:

1. Hunger.
2. Protection against natural elements like wind and weather.
3. Protection against outside attack.

The most elementary form of economic activity is that of gathering supplies which exist in nature. A monkey feels hungry, it stretches out its hand and plucks the leaf or fruit. This is purely predatory. The monkey has done nothing to produce the leaf or fruit. If any factor intervenes which is likely to prevent or retard the supply satisfying the demand, friction is at once generated and causes heat or violence. Thus, if a hungry dog is prevented from consuming the bone he is eating, at once there is violence.

In this activity the animal is highly self centred and individualistic. If a species is gregarious at all, they get together for hunting down their prey like wolves in a pack, but even then they are only interested in the welfare of their group and unite merely for aggression. Such species are usually ferocious.

When protection is sought against natural elements, it is obtained either by finding natural shelters like caves and holes or through individual effort by building nests or combs as is the manner of birds and bees. In this case there is not much predatory activity as the creature makes its own contribution towards the creation of the needed supply.

Safety from outside attack is often obtained by the flocking or herding together of certain kinds of animals like sheep, cattle, elephants, etc. In this form there is a strong feeling of social dependence, and such animals are generally passive and peaceful and not aggressive and ferocious like wolves. For distinction we shall call animals which unite for aggression, such as wolves, "the pack type", and those which gather together for safety "the herd type".

If we analyse carefully the history of man, we shall find the above types reflected in his economic

activity in different stages of his evolution. The primitive savage gathered his fruits and edible herbs, clothed himself with material such as leaves and skins provided by nature and sought shelter in caves and other protected places. Next came the hunter and fisher who produced tools with which they killed or caught other forms of living creatures for their own use. The nomad, on the other hand, captured animals and domesticated them and utilised their products. He wandered from place to place in search of food and fodder. At a much later stage man began to control his environment and produce natural conditions favourable for his purpose and enjoyed the fruits of his labour. When he did this he attained the agricultural stage of civilization.

As civilisation advanced the need for a greater division of labour was felt. Industrialisation began in various forms according to the genius of the people in different places.

The economic organisations developed by civilised man under industrialisation bear marks of these earlier types of evolution according to the stage of development from which the particular organisation took its origin. Generally speaking, the animal's activities are individualistic except in the case of gregarious vegetarian animals of the "herd type"

which get together for safety, or in the case of the "pack type" of carnivorous creatures which unite for aggressive purposes in search of food. The hunter and nomad, who are essentially of the "pack type" are individualistic and predatory and do not consider the rights and privileges of other creatures.

We must bear in mind that the true test of civilisation is not our material possessions or our manner or mode of life but the thought we bestow on the well being of others. In predation, which is really barbarism, we cannot expect to find any civilisation, for true culture shifts the emphasis from "rights" to "duties". Consideration for the feelings of others and a sense of responsibility towards them distinguish the "gentleman" from the boor.

When we get to the agricultural stage of civilisation we find that a sense of respect for the rights of others and a feeling of one's own limited sphere of exploitation evolves with the laying out of boundaries and landmarks. From this, in its turn, grows a sense of responsibility for one's own actions and their consequences on others. In this stage of civilisation the economic organisation is not individualistic as in the earlier stages but becomes socialised much in the same way as the herd type of animals. Activities are controlled impersonally by

means of rules of conduct and by a well conceived regulatory machine. The time taken to pass from one stage to another may be counted in thousands of years since the characteristics of the earlier stages have to be eradicated or modified and the characteristics of the next stage formed. If there is not sufficient time between one stage and another for human nature to evolve, there is a disruption or maladjustment in human society.

Broadly speaking, we may classify human economic organisations into two types, the individualistic type and the social type, or, if we wish to name them clearly with reference to the animal prototype from which they originated, we may call them "the pack type" and the "herd type".

In the "pack type" are found the following characteristics:—

1. Central control and concentration of power in the hands of individuals or small groups in a personal way.
2. Rigorous discipline.
3. Disregard of the welfare of the actual workers or contributors to the success of the organisation,

4. Suppression of individuality in the worker and a spirit of intolerance either in competition or in rivalry.
5. The prospect of obtaining gains the motive force for all activities.
6. Concentration of the benefits obtained and the sharing of them amongst a limited few.
7. To gather in as much as one can without reference to the altruistic value of service rendered, the object being predatory.

We may add that owing to the concentration of power and benefit these activities generally radiate from a limited geographical area such as cities.

In the "herd type", on the other hand, we find:—

1. Social control, decentralisation and distribution of power, the working and regulation being impersonal.
2. Activity steered into desired channels by rules of conduct and social regulatory machinery.
3. Attempts made to safeguard the weak and the helpless.
4. Encouragement given to individual growth and expressed by a considerable amount of tolerance.

5. Activities directed by a consideration of certain set ideals and social movements.
6. Distribution of gains as wide as possible according to the needs of individuals.
7. The object is to satisfy needs judged from an altruistic point of view.

Because of the attempt to decentralise control and production, economic activity is broad based, being scattered over a wide geographical area in the form of village groups.

In the light of these facts we shall attempt in the following two chapters to analyse some of the forms of economic organisation evolved by the human race.

## CHAPTER II

### Western Economic Organisations

Although, in point of time, western organisations evolved much later than our own, we shall consider their merits and demerits first because the ostensible object of this brochure is to enable us to lay a foundation for the proper evolution of the future economic organisation of our own country.

Owing to the fact that the western peoples had no time to settle down to an agricultural civilisation which they had only just attained when industrialisation overtook them, we find a great number of points at which their economic organisation dovetails into the hunter and nomad stages of evolution. "Consequently the characteristic" of the "pack type" which we considered in the last chapter stand well pronounced in their industrial organisations. We may classify them into five main groups according to the personnel of the central controlling group, and as the masses, whether of the West or of the East, are of much the same kind, we may eliminate them.

1. The dynasty of might.
2. The dynasty of finance.
3. The dynasty of the machine.



4. The dynasty of labour.
5. The dynasty of the middle classes.

The dynasty of might is represented by the feudal organisation in which the feudal baron with his retinue under military discipline descended on the villages from his castle and compelled the producing masses to surrender part of the fruits of their labour to him for no conceivable return beyond the doubtful protection afforded by him from the attacks of marauders other than himself. The return for his services or the amount rendered to him was tribute. The benefit so received was mainly for the use of the feudal baron. Any thought of the welfare of the villagers who surrendered a share of the products to the baron never occurred to him. What did Napoleon care how many of his soldiers he left dead on the way so long as he could get to Moscow?

Towards the end of the 18th century we find the dynasty of finance coming into evidence with the commercial exploitation of inventions and the accumulation of capital secured through centuries of economic activities. Owing to religious persecution, men with original thinking powers sought shelter from middle Western Europe in Great Britain. At that time Britain was a poor country and had not the requisite accumulation of capital to bring to full

fruition the benefit of imported brain power. This desideratum was made possible by Empire Builders directing the flow of gold from the Ganges to the Thames. With the rise of financial power the feudal baron found it to his advantage to join hands with the financier. This combination of might and finance led to what is called in modern times "Imperialism". In this also there is need for discipline in the form of "team work" and the return that the organisation gets is called "interest" as against the "tribute" of the feudal lord. The control is centralised and the success of each organisation depends upon the person or persons directing the institution. The recognition of the importance of discipline in the form of joint effort for the success of the financial dynasty is evinced by the fact that "team work" is almost deified in Great Britain. Games which are based on team work such as cricket, football, hockey and boat-racing have become national sports and those who excel in these games are considered almost heroes and fit to carry on the work of the empire. In this system, too, all that mattered was the interest that the financier received. The welfare of the producer was again forgotten. Did King Leopold of Belgium think of the mutilated bodies of the natives of the Congo so long as he got his returns from their forced labour?

America is the best example of machine civilisation. There, man stood aghast at the might of nature. He had to grow artificial hands in the form of machinery to grapple with vast distances, mighty rivers and impenetrable forests in order to make them serve his needs. These circumstances led to the development of machinery as a labour-saving device. By its very origin the control was limited to the few and the interests of those who contributed to the production were ignored. The factory workers might be made into minced meat but the machinery of the meat packers of Chicago could not be stopped to save the life of a labourer.

Under this dynasty discipline took the form of a speeding-up process and standardisation of the article. This organisation also partakes of all the characteristics mentioned in the "pack-type" and the return that is obtained from the use of the machine represents the profits to the machine owner.

When opportunity occurred, exploited labour turned the tables on the feudal barons, the financier, and the machine owner and took its turn at the helm and thus we find communism organised in the "pack type". In this system also most of the characteristics of the other organisations are represented viz., centralisation of control and power,

rigid discipline and suppression of the individual in regard to production and distribution. Whatever good may have been obtained or envisaged by the directing body giving primary consideration to the needs of the community and not so much to the amount of profit obtained, yet this organisation too is a sectarian or class organisation run by the proletariat with special privileges attached to the sect in power.

More recently we find the struggle of the middle classes to seize power represented in organisations such as Nazism and Fascism, both based on much the same lines as Capitalism.

All these organisations are city-centered and in time will lead to degeneration of the producing masses because no initiative is left to them, their function being merely one of carrying out higher orders. Already, within a period of one or two generations, we find in the most well organised capitalistic country, America, that nervous diseases, due to the strain involved in the system of economic production, are giving cause for alarm. In New York State one person out of every 22 is said to be in an asylum. There are 81,000 feeble minded and 40,000 insane in hospitals. About 400,000 children are so sub-normal that they are unable to follow

the ordinary curricula of schools, and in the U.S.A. as a whole, there are eight times the number of feeble-minded as there are consumptives. It is said that mental diseases in America are far more dangerous than tuberculosis, cancer, heart disease, kidney troubles, typhus, plague and cholera all put together. An economic organisation that leads to this situation cannot be self-propagating in as much as any organisation should be able to produce its own leaders. But, all modern capitalistic methods, in so far as they lead to the degeneration of the people engaged in them, carry within themselves the seeds of their own destruction and therefore will cease to exist in course of time. When, therefore, we seek to establish a suitable form of economic organisation for our country we cannot accept a type that leads to the production of mental defectives.

It is because of this nervous strain that the clamour for "leisure" in industrialised countries of the West is so loud. Under their system leisure is a necessity as their organisation is unnatural. Natural work, on the other hand, causes physical weariness for which rest and repose in sleep are sufficient recuperatives.

The working of all these organisations is lubricated by educating the masses into thinking that

happiness is to be obtained by developing a multiplicity of wants. Sanctions based on violence are essential to these systems.

### *Conclusion*

While "pack type" organisations have their evils, they have also some strong points. We may include the first three dynasties of might, finance and machine under "Capitalism".

Under capitalism the profit motive is given free play and individuals are allowed to exploit every situation to their gain even at the cost of injuring society. The advantage of this system is that every individual gets an opportunity to exercise his talents and energy as he likes. In trying to check this, the communists have gone to the other extreme by doing away altogether with the profit motive. Under their system a small idealistic group plans the work for the nation. Individual talent and initiative are entirely suppressed. While the individualistic outlook of capitalism is bad, it is also a mistake to suppress man to the extent of making him into an automaton incapable of thinking for himself. Both extremes have to be avoided. In one, the individualistic outlook appears in an exaggerated form. In the other, the personality of the individual is utterly crushed. While the first is based on uncontrolled selfish greed, the other is based on class hatred.

We contend that both under capitalism and communism, human values are not fully taken into account. Every individual has a personality which, when properly developed has its contribution to make to society. We have no right to look upon the common run of human beings, as either gun fodder as under capitalism or a cogwheel in a machine as under communism. We should not wholly reject either centralisation or private ownership; nor may we entirely ban the profit motive nor advocate complete decentralisation. What we want to find is a mean between capitalism and communism. Both systems have failed to bring out the best in individuals, and both have led to group violence—capitalism by trying to find markets and communism by keeping out the foreigner and trying to enforce its plan. Hence we have to modify both. While we do not reject the profit motive, we shall have to try and curb the capacity of the individual to accumulate profits and wealth. We human beings are so built that progress can only be possible with the advance of each individual. For the advance of each individual it is necessary to allow a certain amount of self-interest. This is fully demonstrated in everyday life. When a man works for a fixed salary as, say, in a Government post, the contribution he makes to society is gene-

rally of a routine nature. The greatest inventions and discoveries have been the results of venturesome spirits attempting to give expression to their inner urge. Decentralisation of production ensures the producer the product of his labour. Therefore, if group production has disadvantages the alternative is decentralised production. While it may be granted that group activity has a contribution to make within a limited community, it is open to serious doubt whether such activity is possible on a national scale for any length of time. A few idealists may get together and run an Ashram or other philanthropic institution on the basis of service but whether such principles can be applied in the present state of varied and varying civilisations on a world basis may be questioned. For even Russia finds it necessary to shut herself out from the outside world in order to carry out communistic experiments. Foreign trade there is a state monopoly and intercourse with foreign nations is highly restricted. Thus the communistic experiment is carried on almost in a laboratory. Experiments may be carried on under controlled circumstances in order to find out the laws that govern economic movements but it is too much to expect humanity, as a whole, to function in like manner under normal conditions without such controlled environment.



Centralised production under Capitalism with the profit motive as its propelling force directs labour from the supply of primary needs to luxuries, from food to face powder. Hence it is that we find a world facing starvation and overproduction at the same time.

Centralised production, whether under Capitalism or under Communism, will in the long run lead to national deterioration, as there is only a limited scope for the exercise of the entrepreneur's ability. Not a little of the unbusinesslike habits of our people is due to lack of opportunity for their assuming responsibility whether in business or in Government. Unless one is allowed to strike out for oneself, there can be no healthy growth. We cannot have a nation of stalwarts on centralised methods. Both political and economic freedom need decentralisation if they are to germinate. The right place for a machine is an instrument in the hands of man, but when man is turned into a machine-feeder, the whole organisation is up-side-down. Man does not exist for the machine.

Under Communism, society is made a fetish of and individuals sink into insignificance. However many material comforts a person may be provided with by society, what shall it profit him if he loses his personality?

We must, of course, have a place for centralised production but it must be only for the purposes of public utilities which should be under either collective or co-operative control. Undertakings such as telephones, telegraphs, roads, postal services, supply of water, exploitation of forests and mines will all naturally come within the scope of the state. We cannot allow private exploitation in these undertakings. The main objection to social ownership and management for commodity production is that under such conditions progress will be retarded. But if social control can take care of the size and capacity of the units of production, exploitation can be minimised. As long as human nature is what it is, it will be impracticable to abolish exploitation altogether. Exploitation and violence in some form or other will be there. Our eating and breathing is full of violence and exploitation. Our purpose, however, should be to minimise these in keeping with human existence and progress. Under the conditions we propose there will be a natural limit to the capacity of an individual to produce. And this, in its turn, will limit maldistribution of wealth. So long as individuals differ one from another, the quantity and the quality of production of the individual will also differ. That is, the income will differ, but the range of difference will be

limited. We can think of differences in income ranging in hundreds or thousands but we cannot have incomes running into millions without involving an unhampered exploitation of thousands. Finance, trading, marketing etc., can also function in a co-operatively managed organisation and therefore there need be no fear of unlimited private wealth.

Communist production takes the form of military discipline in the economic sphere and too much discipline is bad for growth. Soviet Communism is also based on class hatred. Indeed, it is an outcome of class hatred. Even today there are distinctly marked differences in the treatment of peasants and workers. If what we hear about the violent methods adopted to suppress the bourgeois class has even an iota of truth in it, no lover of human progress can advocate such methods in any group. Because if we sow a wind we reap a whirlwind. We cannot afford to lay the foundation stone of a new order for ourselves on class hatred.

It is argued that if we are to have any form of Government, violence is essential. As it has already been pointed out before a certain amount of violence will always be involved in any state control but what matters is the degree and the spirit behind what appears to be violence. Even a loving father

chastises his child. If there is violence in such chastisement then there is bound to be such violence also in a government as we conceive it. Under the form of state control which we advocate, the transition may not be sudden and spectacular; our methods will be slow and will take time to permeate through the nation. We have to have patience if we are aiming at permanence. While disestablishing private property by a stroke of the pen by legislation may be violent, gradual curtailment of private ownership by limiting productive capacity under state control will not necessarily spell violence. In our own country, in the past as well as in the present, a great many functions were and still are under social control and society decides on the merits or demerits of certain cases. There may be abuses in this system, but it does indicate the possibility of subjecting our people to group discipline by social control.

## CHAPTER III

### Eastern Economic Organisation

It is in old countries such as India, China and Japan (as she was) that we find agricultural civilisation influencing economic organisation. In this type the social organisation of the country is harnessed to direct and control economic activity. It is a far cry from the "pack" to the "herd type". The countries which have worked on the latter methods have evolved social systems which are very similar to one another. In the "pack type" there is the common characteristic of aggression for economic purposes, but in this type there is a getting together not for aggression but for internal safety and consolidation. As a matter of fact, in Mongolian countries, foreigners were excluded until very recently, and in India foreign travel was looked down upon and definitely discouraged. Merchants alone went out of the country for commercial purposes. The regulation and decentralisation of power made the entire organisation work in an impersonal way, the driving power being obtained by hitching the economic machinery on either to civil laws or religion or superstition. The interests of the weak and the helpless were safeguarded by provisions which

none could break with impunity. As a result, we find in India such institutions as the joint family system, the division of labour by caste, and the method of distribution to artisans of a share in the products of agriculture.

All the members of a joint family shared what was provided by the earning members. If one had a large income one's brother who was incapable of working was also supported. The large income being shared amongst all the members of the family made the distribution of wealth more equitable, and uncontrolled competition such as would have been possible for extremely wealthy individuals was thereby curbed. The joint family system not only avoided competition and mal-distribution of wealth, but it also offered protection to the incapable and the weak. The caste system aimed at directing the various units of economic activity in consonance with one another and safeguarding the community from over production through personal greed and uncontrolled competition. The barter system of payment in kind to the artisans assured to every individual a minimum of subsistence. The organisation itself was not one suited for the exploitation of the weak by the strong. The principles underlying these systems appear to be based on the conception that work itself is a method of distribution of wealth. The community was

regarded as a corporate unit with its various members performing their own functions and contributing to the life of the community as a whole, just as the different members of our body work together, share a common life and form a unit. It would not do, for instance, for the heart to quarrel with the hands or the feet, or for the stomach to refuse nourishment to the heart. These systems also promoted solidarity and co-operation within the groups and provided little chance for exploitation. People working within such an organisation were like sheep folded in a pen and sheltered from wolves in the shape of exploiters. Exploitation itself was not altogether absent, but the purpose of the organisation was to minimise opportunities for such and offer protection to the innocent by putting up social barriers. These old systems are now not capable of bearing the strain put on them by the tremendous expansion in the field of economic activity. It will be necessary for us, however, carefully to consider the systems evolved under old conditions and devise ways and means of similarly organising present day production without involving a nervous strain on the producer and, at the same time, ensuring to every worker the fruits of his labour. We have seen that the "pack type" had given unbridled scope to the venturesome under its theory

of *laissez faire* and its corollary of the independence of the individual, while the "herd type" recognised that the selfishness of the individual had to be curbed in the interest of society as a whole.

When we look at the West and the East from these points of view we notice that the distinction made between the "pack type" and the "herd type" in the economic world is also to be observed in other spheres such as the political, religious and social. In the political field we find true democracy absent in all Western countries. It masquerades under the cloak of a parliamentary organisation in which real power is vested in a group or in a single dominating personality. Similarly even in a personal and tolerant religion such as was practised by Jesus we find, as organised in the West, concentration of authority and power in one person, the Pope, or in an institution such as the church. The outcome of this has been bigoted intolerance. In social life also we find fashions dictated from palaces slavishly followed in the cottages, and the whole structure of society taking its cue from the cities. The civilisation that has developed has been a city civilisation originating from Greece and Rome.

In India, on the other hand, in the political field in the past village republics managed



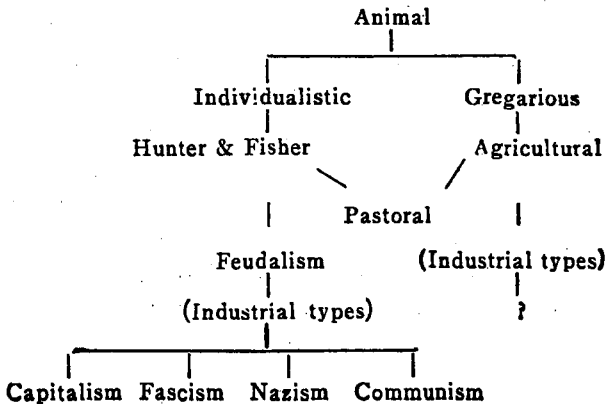
their own affairs. Even when foreign invaders came the life of the villager was left undisturbed. In religion we notice the same tendency to decentralise the form of worship and views in regard to the Godhead, with the result that there was extreme tolerance. In social life grandeur was centred in the palace and the temple, while the life of the citizen was generally simple and suited to village conditions. The people's desire for pageantry and colour found artistic outlets in festivals connected with the palace and the temple, leaving no room for personal display.

Thus we mark the fundamental difference between the "pack" and the "herd types". India has been under the "herd type" for centuries and has evolved a culture which cannot support without detriment to itself the superstructure of the "pack" type. We constantly notice the difficulty that is felt in India in getting a small body of men to work without questioning the authority of the leader, which is the simplest of the requirements of the "pack" type. A casual scrutiny of any newspaper will show the difficulties that bodies such as District boards find in pulling together. There is a fundamental reason for this which has its roots in the civilisation that has evolved through centuries in our country. We shall have to note these variations

in formulating a system of economic production best suited to modern conditions and capable of working satisfactorily in India, if industrialisation is not to bring with it all the evils attendant on its development in the West.

If we attempt to superimpose a foreign structure on our ancient foundation the edifice will certainly tumble like a pack of cards. A plant that flourishes in Russia under hot house conditions may not thrive if transplanted in our country. The "pack type" is short-sighted and selfish and its control is centralised and personal, when, however, the control is socialised and decentralised the policy can be a long sighted one.

The following table gives a broad outline indicating the origin of the various systems considered in this and the preceding Chapters.



The West has evolved some systems based on its own "pack type" civilisation for its industrial life. India had an agricultural "herd type" civilization which is now decadent. The Brahmin has abandoned the privilege of learning and teaching and has taken to the profession of law to exploit the quarrelsomeness of human nature. The Kshatriya is fraternising with the foreigner to hold his own country-men in bondage for pecuniary gains. The Vaisya has entered the international speculative market to the ruin of our farmer. The Sudras have joined Government service in the menial departments.

We have thus fallen away from our ideals, and if we are to rebuild again we have to regain the principles that guided our forefathers. Our degeneration is largely due to deterioration in our national character and to selfishness in individuals. The Brahmin who was originally intended to be the custodian of the purity of the race and the trustee of national culture has misappropriated these privileges and has contrived by various means to keep himself segregated from his fellow-beings. By these means the Brahmins are rapidly losing their former position of responsibility and leadership. It is very like the case of a medical man who in order to avoid contagion or infection from sick people abandons his pro-

fession and confines himself in a germproof cell. Such a person, instead of protecting society from danger, is a parasite himself. Thus before we begin to reform society we should fully appreciate the purposes for which institutions were established in the past. It must also be remembered that, however commendable a particular administration or organisation may be in a given country such an organisation cannot be satisfactorily transplanted in another country unless the environment and the human element are identical in the two countries. What is good enough for America cannot be the ideal for Russia; what suits Italy will not pass muster in England, and much less will any of them fulfil our needs.

## Part II

### The Modern Situation

#### CHAPTER IV

##### Natural Order

Historically, if we follow the natural order of things, demand as represented by hunger and by the need for shelter and protection, precedes supply (food, clothing and housing). Wherever there is a demand a suitable supply follows. "Necessity is the mother of invention". To a certain extent, the existing demand may also be the urging factor for anticipating future wants as in the case of storing provisions against a rainy day. Compare, for example, the habits of creatures such as ants, bees etc., in this regard.

In the case of an agricultural civilisation, the system ordained by nature is not interfered with to any great extent. If there is a variation at all it follows a natural mutation. The agriculturist only aids nature or intensifies in a short time what takes place in nature in a long period. He has improved the wild varieties found in nature. He has converted

grass seeds into wheat and rice by accelerating natural conditions. Similarly in economic organisation, agricultural civilization has followed nature largely in the methods adopted for producing commercial products. Commodities are brought into existence either to order or to meet the usual and easily determinable market demand. A social regulating machine aids distribution but production follows individual effort. There is no central planning unless it be to coordinate effort but it is not employed to set the pace.

Under the economic system of the "pack type" derived, as it is, from the primitive hunter and feudal baron we find that the variations from nature are very violent in that a large supply of goods is produced irrespective of demand, and then a demand is artificially created for goods by means of clever advertisements, as for example in the case of soaps, hair-growers, tea, tonics etc. As it is today, the feast is spread but there is no appetite and we have to create it by appetisers. We shall as a consequence suffer from indigestion as the hunger was artificial, This policy mars the even course of economic production, and leads to over-production, mal-adjustment and mal-distribution of wealth, for the whole system

works from the point of view of the individual controller.

Under capitalism the tools used are expensive. This entails a heavy overhead cost. To lessen the proportion of this expenditure the producer manufactures standardised articles on a large scale, and comes into keen competition with other producers, for the person who gets his goods into the market first gets the best of it. This leads to a glut in the market and in order to create an artificial demand high pressure salesmanship is resorted to by means of advertisements etc. Here then the urge that brings the supply into existence is not the demand but the unnatural overhead load. This being an artificial system needs violence to make it work.

Under communism also the urge to produce goods is from outside the producer and, therefore, not a natural one. Hence it too requires artificial stimulants in one form of violence or the other to sustain it.

In order to produce a better percentage of profit, producers, sometimes unite and form what are called "trusts", "cartels" or "combines". While these are not wholly individualistic they can in nowise be said to be in the interests of the nation for they merely enlarge the circle of control and direction

and continue to concentrate power and wealth. Where private motive proves to be inimical to production socialisation of control takes place by assigning the function of direction and authority to the state. This is a variation which works satisfactorily to a limited extent in the case of public utility services, such as water supply, management of forests, and provision of communications like telephones, telegraphs, roads etc.

In the "herd type" of economic organisation, the natural order of demand preceding supply was followed. The result was that marketing functions did not create any disruption in production as the primary needs of the locality were considered first. Cities and towns merely performed the function of distributing agents and wealth remained in the villages. Though the individual amount of wealth was comparatively small, distribution was more equable than in the "pack type" where production followed that sphere where large profits could be made, and thus becoming more and more centralised led to the concentration of inordinate wealth in the hands of a few.

In regard to production, even where the regulatory functions under this "pack type" are assigned to Government, various forms of economic barriers



are put up by way of control of currency and prices, fixing of freight rates and raising of tariff walls. Even Governments which work with the "pack type" usually become subject to the control of its economic organisation and function for the benefit of the few who control production. In other words, in practice, under the "pack type", Governments have become mere cogwheels in the economic machinery. There is hardly a single Government in the West that can be pointed to as being a thing apart, performing its duties purely with a view to the betterment of the masses. Not only in Capitalism but also in Communism the State has become the main spring of the economic machinery. While the ideal is that Governments should provide the fulcrum for economic activity they have become the levers themselves with the result that wealth has been turned into multifarious economic units, divided by fences which are political, geographical and ethnical.

In such a world of conflicting interests, there is little likelihood of peaceful production, as raw materials, partly manufactured goods and finished products have perpetually to cross these artificial barriers. The greater the number of artificial barriers introduced into the flow of economic goods, the harder it becomes to keep that flow smooth and easy. Today,

therefore, the world is made up of alternating stagnant pools and rapids created by these disturbing factors in the stream of economic production.

Production itself does not attempt to cater for the needs of the common people but, as we have already noticed follows activities which result in the largest profit. A rupee in the hands of a poor man may represent two days' food for him and his family, but the very same coin in the hands of a rich millionaire may represent merely the value of a drink or a smoke. Therefore, the money in the hands of the poor man has a high value in commodities while the very same amount in the hands of a rich man, represents little utility. Hence any production that aims at gathering in the largest number of rupees will naturally cater for the needs of the rich man who will throw away his money with the greatest ease. It follows that luxury articles provide a larger percentage of profit for the producer, it being easier to make a profit by making lip-sticks or such other toilet articles used by the rich than by supplying the needs of the poor in the shape of reed mats or mud utensils. It is because of this misdirection of energy due to the profit motive that we find over-production side by side with starvation in the world today.

Under the "herd" system as seen in India, the production of necessities was distributed in small local

groups by the social regulation of caste. The carpenter, the blacksmith and the chamar produced their articles and supplied them to the people in the villages free of money charges, taking in return a share in the production of local agriculture which afforded them a minimum subsistence allowance.

Under the natural order it is essential that there should be fluidity in production and exchange. This is provided in the "herd type", as we have just seen by the organisation dividing its production centres into small units and making payments largely in kind rather than in money. The chamar makes the shoe and in effect exchanges it for food. The rice producer gets his shoe and gives a part of his production to the chamar. This completes the cycle. If, on the other hand, the rice producer buys a Japanese shoe, he cuts the ground from under his own feet for the village shoe-maker is to that extent impoverished and unable to buy the rice producer's product, while the chances of the Japanese producer buying the rice from the buyer of the shoe are very remote. The greater probability is that the Japanese shoe manufacturer will exchange his purchasing power for obtaining his raw materials from other foreign countries, and if there were no economic friction the money might, by taking a cir-

cuitous course, return to the rice producer in India. But as things are today there are so many economic barriers between the Japanese shoe manufacturer and our rice producer, that the purchasing power, for all intents and purposes, never returns to the rice producer in India. Such an out going with no return constitutes a considerable national loss of wealth.

Money which was primarily introduced as a convenient medium of exchanging goods has now come into its own under the "pack type". The whole of the capitalistic structure is based on it. It has assumed the role of a standard of values. People are educated to judge affairs on a price basis. A market value is placed even on cultural education. "Buy in the cheapest market and sell in the dearest" has become a rule of life. All other standards — aesthetic, human and altruistic — are forgotten. Thus the golden calf has been installed on a high pedestal and the world is told to bow down before mammon. This is a mechanical allegiance to metal. But "man does not live by bread alone". There are other things that matter which have their roots deep down in human nature. Unless our economic order is built on these natural foundations, hoarded gold will only hasten the sinking of the drowning man to the bottom of the sea.

At present in India our freight rates are such that the natural course of marketing is disturbed. One would imagine that Nasik grapes would sell cheaper at the Nasik Railway station than Australian grapes, but owing to artificial barriers introduced in the form of freight rates, it is cheaper to buy Australian grapes in Nasik. Several similar instances might be quoted to illustrate what is meant. As long as a free flow of goods does not exist it is folly for anyone to enter distant or international markets. There is a great deal said at the present time about developing agriculture. If by this is meant that we should produce food and necessities for our millions it will certainly be a step in the right direction, but if the aim is to produce commodities for international markets, our agriculturalists will do well to beware. Already, owing to greed, our farmers have burnt their fingers by trying commercial crops during a boom season, but the same have left them in the lurch during periods of depression. They forget that they do not possess the economic reserve to step into speculative business with impunity. It will be time for us to consider production for international markets when exchange policies and prices of international markets are controlled for the benefit of all and not merely in the interests of a few who are powerful.

enough to make their voices heard. In the absence of such conditions, the only wise course for us is to cater for local needs and steer clear as far as possible of middlemen.

If only we can detach ourselves from the turmoil of the modern world we shall see clearly the havoc caused by the unnatural "pack type" of organisation. If the urge is from within his work should leave the worker a better man. Nature has so planned it that we improve by working if our work follows the natural order. For example, if a person who has the talents of an artist is made to drive a car it will be disastrous to the occupants of that car. He will only attain his full height if he is allowed to follow his natural inclination. We can tell by the effect work produces on a person if he is in his proper place. But when we look at the workers under the "pack type" what do we find? Are they better human beings for their toil? On the contrary, we find a set of men and women whose life and energy have been sapped. The diagnosis is simple. There is a parasite feeding on their life. They suffer from nervous disorders as we have already noted in the second chapter. Therefore, their method of production is unnatural and must lead ultimately to decay and destruction.

What, we have to ask ourselves, is all this pressure of life for? The "pack type" believes in increasing the standard of living. What does this mean but a hankering after an extension of its market? If by a higher standard of life is meant increasing the multiplicity of wants, has this, as is so often claimed, brought about happiness or freedom from drudgery? Has the working woman in England with her "higher standard of life" exemplified by a carpeted floor and a larger house with furniture, any greater freedom from drudgery than her Indian sister with a cowdunged floor and a charpai? If anything the English working woman has perhaps a greater amount of everyday drudgery for the carpets have to be brushed, the dishes and plates washed and wiped, while the furniture and glass windows need dusting and polishing, and her linen has to be washed and ironed. Has she not in reality increased her drudgery? Is her happiness any greater? One thing, however, her higher standard of life has assuredly done. It has created a demand for the capitalist's production. More building and furnishing materials are sold; there is a demand for vacuum cleaners to clean carpets and so on. Is not then even consumption under the "pack type" an enslavement to drudgery? The greater our material possessions the greater

our bondage to earth. The advocate of a "higher standard of life" will do well to realise that he is an agent for the sale of the capitalist's goods. We lead such artificial lives under the "pack type" that we lose sight of the natural order of things and thereby fall an easy prey to the wiles of exploiters.



## CHAPTER V

### The place of Women

While man possesses initiative in a great measure and is venturesome, woman is by nature much more conservative and conventional. Generally speaking, man is objective while woman is subjective. If we may use such an analogy, man may be said to belong to the "pack" and woman to the "herd" type. This being so, each sex partakes of the characteristics of its type. We noted that Eastern men whom we regard as falling under the "herd" type do not follow leadership easily in committees and such like. Women find it even more difficult than men to work in committees. Because of the "herd" type mentality they are conventional; and religion and social customs appeal to them more than to men. In the same way, Eastern men are said to be more religious and obey convention and regulation more readily than men of the West for the "herd" type is more law abiding than the "pack" type. Even in the "pack" type woman is less self-centred than man for her love covers the family.

Hence in all matters requiring the qualities of the "pack" type man is better suited to take the

lead where initiative and adventure are necessary.

The present system of production does not take into consideration the role that is assigned to women by nature. It will be generally admitted that by their very make up they are the custodians of a nation's culture and project into the future the achievements of the present generation. In primitive time consumption was controlled by women, while supplies were in the hands of men. If women did the cooking men provided food materials. If women needed a home men provided the wherewithal in the form of bamboos, thatch, mud walls etc. In the language of economics the woman was the creator of demand and the man's place was that of the supplier. As evolution advanced under the "herd" type, woman was given a place in the social control of production, and thus the rules of conduct and regulatory machinery were provided for. We find even today in India, in spite of the deplorable state of culture and the depth of ignorance and superstition to which women have sunk in our country, that they still play an overwhelming part in the everyday life of the nation. However advanced in his views and however cultured a man may be, it is often his wife's superstition and ignorance that rules the home and he pleads his inability to go against the dictates

of mother or wife. This is one of the main reasons why even though a large number of Indian men have acquired modern ways of living yet their homes are often to be found in insanitary and unhygienic conditions. Unless women are culturally equal to men there will be a disparity and social life will follow the level of development of the women. It will be next to impossible for men to put their ideas into practice unless their womenfolk also see eye to eye with them. Nature has endowed woman with certain faculties which are largely dormant in man, such as intuition. Hence their contribution in the economic sphere is bound to be different and the role they play will be distinct and will not overlap.

In the 'puck type' woman's place in the economic sphere was largely ignored. Under the dynasty of might she was merely a cave man's captive and her sexual allurements have made and unmade empires. Under the dynasty of finance she became the emblem of the social status of the financier. In her dress and manners she displayed the ostentatious mode of life made possible by necessary appurtenances drawn from all parts of the world. Her main function seemed to be to fight for such social rights as befitted the income of her man. With the advent of the machine, she fell further and

became either a mannequin advertising the wares of machine production which she began to consume as a result of high pressure salesmanship or she became "emancipated" to the extent that she entered factories as a producing hand, where the machine-owner exploited her lack of staying power by giving her lower wages. When labour came into power she was assigned an equal place with man as a producer. But in all these various forms of "pack" type economic organisations she has not found the true place assigned to her by nature as the creator of demand and the custodian of national culture. Machine owners produce articles and suggest to women that they should consume them and women have been following fashions blindly and by readily walking into this trap have become mere consumers. Today, whatever may be the claim for equality of the sexes and whatever may be the result of enfranchisement of women in the political sphere, they remain an excellent market for the consumption of machine made goods. They have abdicated their natural role to the profit motive which now directs economic production and has assumed the part that should have been played by women had they realised their true calling. Man is working single-handed in the economic sphere as a supplier without the aid of

his partner who should have by her demand laid down the lines on which production should proceed. The enormous maladjustment we find in the world today is in no small measure due to women not occupying their proper place in the economic sphere. Even in the "pack" type, unless woman assumes her rightful place and dethrones the profit-motive, there will be no hope for a natural order of economic production. Once, however, women take their proper place, the subsidiary activities dependent on the home will fall into proper alignment and this will surely lead to human progress.

Woman has proved herself an easy prey to psychological suggestions made by advertisers. If women will assert themselves and become discriminating buyers, even if they do nothing else, we shall find a transformation in the variety of goods produced. After all the bulk of the commodities produced and put on the market are for the home and therefore come within the purview of the woman who is the home maker. When women come into their own and play their role well we shall realise fully the truth in the old adage that the hand that rocks the cradle rules the world.

## CHAPTER VI

### International Strife

In primitive days violence attached to hunting and fishing and to disputes over the sharing of property. In the "pack type" aggression constitutes an essential feature. In the dynasty of might it forms the very basis for its successful working, the motive urge being personal aggrandisement, expansion and extension of rights, achievement of personal ambition or wreaking vengeance on an adversary.

In the dynasty of finance might and finance entered into partnership and bred imperialism. An armed power was necessary to maintain, safeguard and expand distant fields for the investment of capital from which good interest could be drawn. In the machine age, because of the heavy investment entailed in the instruments of production, it became necessary to produce as much as possible in a limited time because, if the machinery were allowed to be idle, the overhead charges which are a constant factor would assume a larger proportion of the cost of the finished articles. To reduce this it had to be distributed over as large a quantity of goods as possible. Therefore, the incentive for large production without regard to the existing market is in the

very nature of a system of production based on expensive tools or instruments.

In addition to this, when individualistic control and free trade doctrines are promulgated, the desire for competitive production tends towards production without relation to the market. In both these cases it becomes necessary to find markets for the supplies that have been created. There is also the need to control distant raw material sources to enable the producer to obtain a steady flow of raw material. Division of labour is carried to an extreme. A nation that is industrialised depends for its very existence on its sources of raw material and on markets for its finished articles. The control of these forms a veritable struggle for existence. These factors lead to the need for obtaining and retaining markets which end can only be achieved by keeping down or controlling other people by force. Anyone who interferes with the raw material source or with the market is like a person trying to snatch a bone from a hungry dog. Such interference leads to violence. In the case of labour organisations of production, because the power, control, and planning are centralised a considerable amount of sanctions are needed for proper carrying out of plans. The urge for production being external and not from within is

unnatural and therefore needs coercion and violence. Regulation is by force and the system itself being run much on the lines of capitalistic and individualistic methods of production can be converted at a moment's notice into any of the other forms of the "pack type". Hence it attracts the attention of highly armed nations and as a means of protection it involves large scale armaments.

It is because of these reasons that at the present time Western nations are finding it impossible to bring about a peaceful regulation of affairs. All wars and international disturbances today have their roots in the "pack type" economic systems of production and as long as these exist, it follows as the effect the cause that there must be and will be war. No amount of agreement between nations, however well meant, will lead to disarmament. We have seen the impotency of the resolutions passed by the League of Nations. In effect, this league has become a league of wolf-packs and cannot be converted into anything else so long as international relations are based on the present economic structure. If we in India also follow these types of economic organisation, it will be next to impossible for us to avoid the consequences of such systems. Unfortunately, Japan has deviated from the "herd type" of



economic organisation and has gone whole-heartedly into "pack type" with the result that she has become as aggressive and imperialistic as any of the western nations. "He who draws the sword will perish by the sword". Do we subscribe to the ideals that underlie methods of economic production as we see them in the West, or shall we evolve a type which will be different in its very nature from the "pack type" by following the lines that have been laid down by the civilisation that has grown up in our own country and has produced the "herd type" of economic order? In doing so it will not be necessary for us to follow in detail the original rules and regulations as they were made for a certain specific stage in evolution and will not suit our purposes in the modern world, but it will be possible for us to evolve an order which will curb individual greed, increase production in relation to demand and confine it as well as its marketing to the needs of the people.

What is the situation in the world today? The world is surcharged with violence. Nations are gnashing their teeth and snarling at each other under the cloak of armed neutrality and an ostensible "peace". There is hidden hatred and enmity in every hand stretched out in "brotherhood". All talk of championing weak nations is motivated by selfishness, greed

and avarice. Professions of a desire to civilise backward nations and to bring light and learning to those who sit in darkness are the excrescence of Imperialism. In short, we see wolves stalking the land as lambs.

We noticed that the movements of these dumb creatures are conditioned by search for food and hunger is the urge behind their labours. They reap where they sowed not; they consume without producing. Their ferocity is increased in the same ratio as the scarcity of food. Or, in economic language, if such may be used, the intensity of the demand causes violence, for supply is limited and competition for that which is available is sharpened.

The position is not very different when we come to man in the nomadic stage. He, like the animal, is not able to increase supply to meet the demand but moves about from scarcity to plenty, and anyone who stands in his way falls a prey to his wrath. His production, if any, is very limited and his consumption is predatory, nature being generally the victim. The directive force which fashions his movements could again be said to be hunger in a larger sense i.e. his very elementary and savage needs. He also finds that his demands are not always met by nature and when this is so there is competition and violence.

From the nomad we pass on to the agriculturist who, for the first time, tries to equate supply with demand by aiding nature i.e. by his production. Thus he is able to control supply. He is able to meet even his greater needs in the shape of food, clothing and shelter. He produces what he needs and consumes to his satisfaction. In this stage, as the diversity between demand and supply is not great, competition is curbed. There is no unwholesome pressure to increase consumption artificially and hence, the generation of violence is lessened. Supply follows demand and the production is to order i.e. definitely directed towards satisfying an existing need. We may call it a "bespoken economic order". A man needs a pair of shoes and these are made to fit his particular feet and their shape. Only in this manner can the demand be fully satisfied. The ability or the ingenuity of the producer expands with the exacting nature of the demand and leads to the development of his skill and personality, and thereby contributes to the culture of the age. As long as the producer rises equal to the occasion and satisfies the demand there is no room for violence. Every one eats of his vine and of his fig tree and drinks the waters of his cistern and there is peace in the land.

In the "pack" type the nomad's dependence on nature is forgotten. The agriculturist's attempt to supplement nature is carried to the other extreme and man celebrates his "conquest" over nature. Nature's forces are harnessed to serve man. Various devices to aid man in his activities have been invented. But here again he has overreached himself and the machine that was intended to be a servant has become the master, thus reducing the bulk of mankind to abject slavery. Supply has made larger strides than demand. In the earlier stages the struggle was to increase the supply. Now overproduction loudly calls for an increase in demand. Machinery spells standardisation and large scale production. Even then this does not meet the demand correctly. A man in Bombay wants a pair of shoes. He goes into a shop and he is presented with footwear made in Northampton by a shoemaker who has never set eyes on the customer. The shoe manufacturer makes standard sizes and without trouble he easily multiplies the numbers. He does not wait for orders. Like Pat-a-cake, the baker's man, he makes them as fast as he can and ships them to various parts of the world for sale. The supply comes into existence without knowledge of the extent of the demand and then, perforce, has to try and create it. The bare-

footed natives have to be "civilised" in order to be made to wear European shoes. This leads to violence. Again, in an industry like the steel industry powerful vested interests influence the Government to find outlets for their products. The Government seeks out "backward" peoples and builds railways and bridges for them while the children of the "backward" peoples are starving both physically and mentally. All these standardised products can be turned out in large quantities without much extra cost and markets have to be found for these supplies. Such a state of things naturally leads to violence. Still worse is the case of the manufacturer of armaments, who is obviously interested in nurturing belligerent conditions which make for a boom period in his business. Violence is the very essence of his success. In the past, the directive forces which stimulated economic activity were the natural hunger of the savage and the nomad and the discomforts of the sensitive body of the agriculturist. These were nature's urge or goad. But now we have artificially to increase demand by habits cultivated by imitation or custom, so that the excess in production may be absorbed. Food, clothing and shelter were nature's demand but tobacco, lipstick, rouge and face powder are examples of the demand cultivated by imitation

and custom. In many cases even if the consumer is indifferent, the producer, by modern methods of advertisement and other means of propaganda, persuades the public to use that which is unnecessary and has no real utility and makes business for himself by the sale of his goods.

Thus we notice that the forces that formerly directed economic activity have shifted from the purpose of making good the shortage of supply to meeting the shortage of demand or, in other words, overproduction.

A study of history teaches us that when a people's demand is too difficult of satisfaction, their culture and civilisation die. This situation may arise either by their inability to produce as in the case of the Red Indians of America, or in the degeneration of the race as is seen in the downfall of every great empire. In the latter case, supply is increased by booty, loot and the exploitation of captured races as slaves, actually or constructively. To consume such predatory wealth the standards of life are artificially increased. Consumption takes place without production. Before long such a civilisation collapses as it has no back bone. Predatory consumption is not conducive to growth but undermines the stamina of the people. A nation can flourish only as long as its demand

can be met by its productivity. When there is not much disparity between demand and supply the nation advances culturally. India, China and Egypt have to look back, to the days of their agricultural civilization for the heyday of their cultures. In the west, the Industrial age produced a transitory culture during the mid Victorian era, but it was not long before the supply went far ahead of the demand and steeped the world in that barbarism and despair wherein we find ourselves today. Indeed, we can boast of knowledge and the advance of Science but that is not true culture. The pressure of life today is not conducive thereto. There is no true leisure. We have to equate our supply and demand but not artificially. Until we are able to do this, violence will stalk the land. At present we are in a state of unstable equilibrium and our "civilization", such as it is, may topple over any moment.

We must inevitably check the artificial creation of demand. This cuts at the root of all imperialism. People have to evolve their own culture after their own fashion without any attempt on the part of the outsider to "bring civilization to backward peoples". Avarice, as a motive for production, has to be curbed and the extent of each person's economic activity has to be limited to his capacity in such a way that the

weaker members are not exploited. Under capitalism profit motive is allowed free play without regard to any other consideration. Goods are produced for immediate gain, and in a manner which gleans the profits into a few pockets only. This leads to a shortage of necessaries, overproduction of luxuries and maldistribution of wealth, while the masses are reduced to undernourished machine feeders. This state of affairs has generated class consciousness resulting in the conflict of Capital and Labour. On the other hand, Soviet Communism has given up the profit motive but has intensified class hatred. Its working has resulted in a greater concentration of power than under capitalism where we get a concentration of wealth which is a lesser evil. The workers have little initiative which is a prerequisite for the formation of any culture. We should not aim at producing a Robot but at developing the individuality of persons however many may be their inconsistencies and incongruities. Material advancement is worth nothing when it is obtained either at the cost of the individual's personality, or at the cost of bringing about class hatred.

The production of supplies without reference to existing demands has created a complexity of circumstances. To dispose of the excess production markets



have to be found. Competition has assumed a keenness never before known. To increase the consumers i.e. the demand, it was necessary to complicate the lives of simple folks or to "civilize" them. The eagerness to capture markets and "civilize" backward peoples has led not only to jealousies between industrialised nations but also to resistance on the part of the victims and these have, in their turn, led to armaments and violence on a scale in keeping with large scale production which is the root of the trouble. In this turmoil there can be no room for real culture, as all energies are concentrated either on feeding violence or on combating it.

## Part III

### The Solution

## CHAPTER VII

### Industrialisation

Agriculture had, as its complement in the past, various kinds of subsidiary handicrafts. In many industries payments were made to artisans in kind, from agricultural products. In fact such industries as were in existence were, but the workshop of the farmers for supplying their tools, implements and other necessities.

With the advance of civilisation daily requirements increased in quality, quantity and variety. To supply these artisans carried on their trade until recent years in the vicinity of towns in the form in which it had been carried on in the past. The producer required little or no capital apart from what was needed for his simple tools, and even these he often made himself. The question of marketing had not assumed the dignity of a problem. As there was a very small percentage of profits the accumulation of capital was slow. Because of the existence

of various industries and the rigidity of the division of labour as practised under the caste system, the pressure on the land was comparatively little.

With the industrialisation of Western countries all this changed. India was turned into a market for goods from the West and utilised as an opportunity for the development of their industries. For instance, while the pressing need of India was canals for irrigation and transport, railways were built to afford opportunities of development for the then growing steel industries of England as also for strategic considerations. On this account the various complementary and supplementary industries disappeared and those who were practising such industries fell back on the land, thereby increasing the pressure there. If we aim at relieving this pressure we must divert off a large percentage of the population to other occupations. Further the glamour of English education as introduced by Macaulay, drew away to towns and cities those who would have, in the ordinary course of events, supplied to the village the initiative, the imagination and the technique required in every industry. Thus the village was left mainly with the drudge to carry on his occupation according to age old methods.

Under the influence of capitalism, people have come to believe that price is all that matters. As the directing power under capitalism is the profit motive all the emphasis in life is placed on money values. In our ancient organisation, however, values were otherwise determined. The richest of men and princes fell at the feet of a saint. The Brahmin was at the head of all castes and not the Bania. The Kshatriya paid his homage to the savant. Even ordinarily, does a woman buy a thing just because it is the cheapest? If a flimsy silk with a beautiful pattern is offered at a higher price along side of a coarse and durable material at a lower price, will she not choose the one with the beautiful pattern? What is the standard of value she uses? Not the price nor durability nor the quality of the material but the aesthetic value. At least in India, who will allow his brother and his family to starve and with money so saved buy finery for himself? Does money value guide his decision or do love and duty? We had evolved a sense of values based on human considerations and it is quite within the range of possibility to revive it in our country.

If village life is to be resuscitated it will be imperative for men of high calibre, with the requisite initiative and imagination, to live in villages and

solve rural problems with the help also of modern scientific methods. This is a process which requires considerable amount of re-adjustment in our society as organised at present. Mere mechanical re-adjustment may relieve the situation immediately but no proper or lasting solution will be found unless we plan a new order based on evolution in human thought and action. Mere introduction of large scale machinery, for example, as is used in the West, will not solve the problem. Such methods have been tried in various industries and have proved an utter failure. For instance, if instead of hand-looms we introduce power-looms for weaving saris we are at once confronted with a variety of problems which complicate rather than remove our original difficulties. Let us assume that the power loom is four times as efficient as the hand loom so far as production goes. Let us assume also that the hand loom weaver used to make about 150 saris in a year most of which would normally be marketed during the marriage season. The loom itself might cost in the neighbourhood of Rs. 75-0-0 and if the saris on an average cost about Rs. 4-0-0 each he could carry on his trade with a small capital of about Rs. 300-0-0. The moment we introduce power looms his production become 600 saris per year. The market does not

extend 4 times as quickly, for we cannot, for the benefit of the weavers, have four marriage seasons in the year. The result is that with a more or less stationary market he requires Rs. 2400 to produce his stuff and the loom itself would cost about Rs. 800—0—0. Instead of a capital of Rs 300—0—0 he now requires a capital in the neighbourhood of Rs. 3000—0—0 and even then he would have all his capital locked up until the marriage season. This situation results in competition and forced selling in order to recover his capital and capture as much of the market as he can. Usually the type of man who has been a hand loom weaver does not possess the requisite capital and he either gets into the hands of the money lender or has to sell out. A four-fold increase of production also requires the qualities in the man to be made four times keener. Under the Western individualistic type of civilisation people combine for purposes of economic activity. In our own forms of culture the combination is only for consolidating our position and safeguarding the interest of the weaker ones. Therefore it is that we often find that the methods of co operative production as introduced by Westerners do not work in our country, the human element not being suited to them.

If in the illustration we have assumed, the situation continues as depicted, in time the hand loom weavers will all be out of business and so will the single unit power loom weavers and their business will drift into the hands of capitalists. The weavers will then become machine feeders or factory hands and we shall be reproducing in our country all the attendant evils of industrialised factory methods that we find in the West, culminating in war and violence.

Besides, under capitalistic methods of production the introduction of large scale machinery has not solved the question of employment. Countries like England and America which have been highly industrialised for several decades suffer acutely from unemployment. Large scale machinery was a result of forced circumstances in America, where man was up against natural difficulties such as long distances, vast water courses, lofty mountains and scarcity of labour. To overcome these he had to grow, as it were, extra hands in the form of machinery. Therefore the function that machinery played was one of labour saving. But in our country and in all well settled countries labour itself is the best means of distribution of wealth. If a man includes large scale machinery under his system of production he over-

weights the scale in his favour to that extent. If we look upon labour as a means of distributing wealth then we cannot have much use for the type of machinery that has been evolved by Western civilisation, for instead of distributing wealth, such machinery concentrates it in the hands of a few. The type of machinery we need must be such as will minimise drudgery but at the same time will not provide room for exploitation.

We find today that machinery has been invented with the basic idea of exploitation and, therefore, the worker is not taken into consideration. What we need to do is to find simple machinery which will be within the means of the average producer in India.

If we look upon production itself as a means of distribution of wealth then the larger number of producers we have the more evenly will wealth be distributed. It is not conceivable that any nation can become a nation of millionaires; so if wealth in our country is to be distributed amongst the masses the means of production should be within the reach of all. In planning such an industrial organisation we do not aspire to produce men with incomes running into five and six figures, but to supply food and shelter to everybody. There is no objection to



machinery as such. If there is any objection it is to such machinery as has been devised to concentrate the profits into a few hands.

In Western industrial organisation, the interest of the producer himself does not figure as an end but in any system that we produce we must keep as our central aim the welfare and the well being of the producer and his family. In the West even where labour has evolved its own organisation the emphasis is largely on the material rather than on the human element. As against this, it must be remembered that it is not the multitude of things that we possess that makes us happy. In the "pack type," whether under capitalism or under communism, it is thought that however soulless one's work may be it is possible to supply this lack by devoting some time outside the factory for cultural development. Culture of the true type, however, cannot be thus separated from our daily work. Work makes us what we are and develops the dormant qualities within us. Nothing else will enable a man to realise his true self. A man who spends his entire life in an occupation which involves his merely carrying out the orders of others cannot even hope to develop a sense of responsibility. Without initiative there can be no development of personality much less of any abiding

form of culture. The system of production itself must form part of life and make life worth living. Under the centralised industrial system production has become a nerve racking process. We should look upon production as a continuation of the schooling of our youth. It should possess character building qualities as well as afford an education to the producer. If this can be carried out, though the material welfare of the people may not be on a par with the plutocrats of the West, yet the general level of happiness will be much greater and it will produce a nation of a higher average intelligence and character, which in its turn will be a profitable reservoir from which leaders can be drawn.

Planned economy, on the other hand, emphasises the material production rather than the development of the individual. To enforce the plan it is necessary to resort to violence. Such production is not natural and, therefore, cannot be lasting.

When power gets concentrated in the hands of a few initiative ceases and man is dwarfed. Such a system must lead ultimately to a form of slavery merely for the purpose of obtaining material goods.

It is commonly suggested that it is possible to afford opportunities for culture by means of provid-

ing leisure under the "pack type" system if the hours of work are restricted. Is this possible? If the U. S. A. labourers can content themselves with the standard of life prevailing in India by working for two hours a day only, will they devote their leisure to cultural pursuits? In all probability instead of doing this they will idle away their time and thus be led into demoralisation and decay.

The gilded homes of the capitalists of Britain seem to lead people to imagine that by industrialisation all poverty can be banished. Industrialisation requires much capital if it is to be broad based. We can get all the needed capital for a few sugar mills or a few steel plants but that does not industrialise the country. The impetus that Britain got was predatory. But for the transfer of hoards of wealth from our land such industrialisation would have been impossible. There can be no industrialisation without predation as the needed capital cannot be accumulated out of individual efforts within a life time. Britain is still at the breasts of India. If the infant is hefty, credit is due to the mother's milk. What will happen when the infant has to be weaned and has to forage for himself? The new Russia is still a babe in the life of nations and she has her store

of confiscated wealth to feed on for some centuries more. Industrialisation on a national scale has not been achieved anywhere as yet. It seems an impossibility without predation and, therefore, without violence.

In both capitalism and communism, then, there is room and need for violence, and great concentration of power in a few hands. Because of their failure to establish a healthy equilibrium between supply and demand we are led to advocate individual units of production rather than collective units. This adjustment in itself will reduce the excess of supplies. Markets should be localised and only the surplus, after satisfying local needs, ought to find distant markets.

The present economic system reminds one of old time steamers which could be sunk by springing one hole in the hull but modern steamers have watertight compartments which prevent the ship from sinking, even if a part is damaged. Similarly, when over production and the market are not centralised, the dangers of the system, as a whole, coming to grief are few. In such a decentralised system the danger of violence too is greatly minimised.

## CHAPTER VIII

### The Function of Work

[We shall bring together in this chapter the views in regard to work expressed incidentally in the earlier pages. If in the process we repeat ourselves, it is only because the topic is important for an adequate consideration of what should be the basis of a new economic order for our country.]

Should our purpose be one of making work for men? If it should, then what is the virtue in making work? Is it charity? Is work a curse or a blessing? What does work bring to man? Do men improve by working or do they wear out? We shall spend a few moments considering these and similar questions.

The supply of good wholesome food material and other honest products is in itself a worthy object. It is social work of a high order especially in these days of adulteration. Finding employment for the unemployed may also be considered a praiseworthy humanitarian work. If we stop at these have we fulfilled our mission in life? If work were only a matter of supplying goods why not go in for mass production whereby larger quantities may be supplied? Work for work's sake idealises drudgery. Drudgery is to be minimised and

one who makes drudges of men is no benefactor. Then what is it we are after?

One of the things that distinguish man from beast is religion. By religion people generally understand ceremonial worship. If a man is truly religious his every action should declare the glory of his Maker. Ordinarily understood religion occupies only a little fraction of man's waking hours. Most of his time is spent in work. Practically all his thought is concentrated on it and his life consists of what he does. This being so, work is even more consequential than ceremonial religion. We may almost say that work is the practical side of religion. To deny man his opportunity to work is therefore to deny him the privilege of being a full fledged human being if religion differentiates man from beast. Looked at this way work denied to man is like denying him entry into a temple. Economically, the unemployed are like the untouchables in society. Both stages are equally degrading to man. Banishing unemployment is like throwing open the doors of a temple to everybody. It is in the fitness of things that Gandhiji went on his Harijan tour and finished it with founding the All India Village Industries Association. He started with making ceremonial worship possible for everybody and ended by attempting to bring home

to everyone the practice of religion in the form of work.

This may sound fanciful. A little clear thinking will, however, show that from a practical point of view the function that work plays in society is even more important than that of ceremonial religion. It is easy to profess to love God in the abstract, but it is difficult to show one's love of God in one's everyday dealings with one's neighbour. The first represents the ordinary conception of religion and the latter the real function of work. If we do not love the brother we have seen how shall we love God whom we have not seen?

From this aspect work is, as already said, even more important than ceremonial religion. But work has not always been looked upon as sacred.

According to Aristotle slavery was ordained by Nature. Work devoid of its opportunity for self-expression becomes drudgery, and slavery is the result. In consequence the civilisation of Greece and Rome regarded work as an evil. In the measure in which a man could free himself from work or heavy toil he gained social status. Slaves were ordained by nature to toil away. Under such ideals these civilisations collapsed. We still find the same view point on

work projected into the economic organisations of the West.

We may divide our daily activities into three kinds:—

1. exertion under external order
2. exertion for its own sake
3. exertion with a self chosen purpose

The first form is slavery and saps the vital energy of human life. The second form is one in which there is physical development or pleasure as in games and play, but it is in the third we find true work with an aim which leads to the development of the higher faculties in man.

If work for work's sake was good than slavery may be said to be goodness itself in "pill form". What was then wrong with slavery? Initiative was taken away and this led to decay of personality. Thus the seed of mental development was sterilised. All that was left was drudgery. In its proper place drudgery is no evil but by itself it is a drag. Just as for good digestion we need a good deal of roughage we need 90 or 95% of drudgery to get the best out of work, and just as if we eat only the roughage and no food our stomach will suffer and life may become extinct, so also if we have only drudgery



and no initiative all progress will be at an end and society will die. The toil of slavery is not work but drudgery and hence it spells death. If we give drudgery to the masses, as is done under the methods of large scale production, there is nothing but social death awaiting us. The irksomeness in slavery is largely due to external compulsion having taken the place of willing cooperation or personal initiative. We have seen that the first type leads to deterioration and death and, therefore, taking into consideration the wear and tear of human life slavery is the most extravagant form of labour.

In a predatory stage, honest work is looked down upon. A person is regarded clever if he can acquire the greatest amount of material gain with the least amount of exertion. Physical work is certainly at a discount. It is because of this view point that exploitation has gained ground. The mentally alert, in order to save themselves from work have lorded it over the less assertive ones whom they have forced to work for them. Further, in this stage, work is looked upon as a means of acquiring wealth. Wealth in its turn is not sought after for the means of providing the primary needs of life but for the acquisition of control over the lives of other men or, in other words, for power. Work in this sense

is a dangerous instrument in the hands of the ambitious for it leads to the enslavement of weaker persons. Just as a steel blade may be used as a dagger to stab an enemy or as a knife to cut an edible fruit work may be either a deadly weapon or a faithful servant of man. Under western methods of production work leads to concentration of power and that, is an unfailing proof that work in the West is misdirected into wrong channels. It does not matter whether the concentrated power is used for good or evil. If the means are bad the end cannot justify them. Both under Capitalism and under Communism work aims at or results in concentration of power. In Capitalism power is concentrated in the hands of the Capitalist and in Communism in the hands of the few who run the State. Workers under such circumstances exist to work; man is regarded as made for work and he ends up by becoming a slave. He labours and some one else gets the power his labour generates. Such work saps the life of man and leaves him exhausted at the end of the day. This is the part played by work in all, so called, industrially advanced countries of the world today. The working man functions as "dumb driven cattle". All initiative is taken out of him, he becomes a cogwheel in the economic machinery. With the deprivation

of initiative he loses interest and all sense of responsibility. He ceases to think and the more he gets into the meshes of the powerful the less resisting power he possesses to escape from the disaster awaiting him.

We need not dwell long on the second type. It is essential within limits. Play has its place in a well ordered life but if it assumes the place of a main objective in life then "all play and no work will make Jack a dull boy". The lower strata of ancient Greece and Rome were slaves and passed out of existence as animals do. The higher strata of society took to play and amusement and they developed physically but met with ultimate destruction morally and spiritually.

It is only in the last type that we find man at his best. What builds our character is not the great decisions of life but the solutions we come to on small questions from day to day. Work absorbs most of our waking hours and many of the problems connected with work and our dealings with our fellow men are what determine the nature of our life. Therefore, it behoves us to sit up and take note of what our work makes of us. If we analyse world history correctly we shall find that civilisations were what

they were because of the nature of the economic life of the people. Religion may have infused ideals but work was the laboratory in which they were tried out. Therefore work can play a much wider part in the development and growth of a nation than institutional or ceremonial religion and yet how much conscious thought do leaders bestow on this formidable force? Properly directed work affords facilities for the development of patience, perseverance, initiative, creativeness and originality and with it self-confidence a sense of responsibility, accuracy and eye for detail and fine finish. Work is indeed a school for life.

In both Capitalism and Communism, or as a matter of that, in all large scale production, the worker becomes a mere hand where head and heart are hardly exercised. In such economic organisations culture has to be acquired outside work, so far as this is possible. Psychologically, this is an altogether artificial way of introducing culture into people who have been deprived of it through the natural channel of work. If this is to be rectified and work be made a means of obtaining culture, or in other words a means of developing one's personality in all its three aspects of intelligence, character and artistic sense, then it is obvious that work cannot be planned and dictated from the centre, but must be decentral-

ised. In this undertaking of setting work back in its rightful place the greatest difficulty is to overcome the ideas that have been instilled into the people by a false system of education inculcating wrong standards of value. The Village Industries Association which seeks to restore work to its proper place in the life of the nation has therefore to work against great odds. It has not only to change the present day ideology in regard to work — a matter which cannot be done in a day — but it has also to provide new methods of work. Inventions reflect the mental attitude with which problems are approached. As already said, in the last two centuries machinery has been so devised as to concentrate power. We have to discountenance the use of such aids to production but in time we hope to substitute these by such tools as will lessen drudgery without concentrating power.

A greater achievement will be to combat the prevailing idea of work and instil into peoples' minds that work must have as its end the well being of the worker.

In work of the type ordained by nature there is little use for so called leisure. People will find it much easier to spend their time working under congenial conditions than to use leisure profitably. To use

leisure properly one has to have a high degree of self-discipline which is one of the valuable products of true work. If in the course of our daily work we get ample room for the expression of our personality then there will be no need for leisure. Of course, there will be physical weariness which is healthy and which needs repose and relaxation in sleep and rest.

The moment we shift the emphasis from men to the material we lose sight of the true function of work. If in a training institution young men spend their efforts in handling planes, hammer and chisel they may waste wood, but they are developing their muscles and skill. On the other hand if they are made to feed sawing machines and to use their time in producing fine furniture by elaborate machinery the emphasis is on material gain and not on the training. Is finely carved and finished furniture more important than the skill of the young men?

If we would save man from being degraded into a beast or an automaton we have to face this situation and find a solution wherein work will cease to be a means of concentrating wealth and power but will become a means of distributing wealth. If this is achieved there will not be the meteoric careers of millionaires but we shall have a few more annas put into the pockets of the starving millions. This will

increase the real wealth of the nation even if the money value be the same. If one lakh of rupees be concentrated in the hands of one person the utility of that amount to the person who possesses it is as nothing as compared to the utility of the same one lakh if it were distributed among one hundred thousand poor people and found them their daily bread. Today all work is directed towards producing the articles by which the largest profits can be made rather than to meeting man's primary requirements. Therefore the poor man's needs are forgotten while there is a glut in the rich man's luxuries.

The idea that production should aim at supplying the needs of the worker rather than at acquiring wealth or power is what underlies the programme of the Village Industries Association which concentrates its attention on industries that meet the primary needs of the people such as the production of articles of food, clothing and shelter. This is again seen in the All India Spinners' Association's programme of self sufficiency under which the spinners have to provide themselves with clothing out of their own spinning.

If we had merely to float downstream and produce goods in the accepted fashion of today, with-

out having to fight against various forms of ignorance taught in schools and colleges to suit the ends of modern producers, it would be possible to show quick results but the work of leavening and remoulding the cultural and economic foundations of society which is the task undertaken by the Village Industries Association requires time, infinite patience and perseverance.

From our point of view any wrong use of work is sin and causes sorrow. Western organisations have, as repeatedly pointed out, looked upon work as a means of accumulating wealth i.e. gathering in the available purchasing power from everybody to obtain control over the lives of men. This has naturally led to jealousies and violence. Can anything else be expected? Unless we bestir ourselves and restore work to its proper place and man to his natural dignity and allow work to develop the masses, there is little hope of finding persons who will be able to bear responsibility and steer the helm of state to peace and prosperity.



## CHAPTER IX

### The Present programme.

It is impossible to overlook in any country the organisation needed to provide food and other primary necessities and agriculture ought, therefore, to be the greatest amongst occupations. To carry on this occupation profitably, we require a considerable and close study of nature on a scientific basis for it is an occupation in which man attempts to control nature and his own environment in such a way as to produce the best results. This work cannot possibly be carried on individually because it requires a considerable amount of time for experimentation, going often beyond the proverbial three score years and ten which may fall to the lot of the long lived ones. Many of the experiments in cross breeding to bring out special strains in particular crops have to be tested through several generations before they can be put into the practical field on a commercial scale. This type of work can only be done by the state for the people, and when it is done, unless the result of the experimentation is brought home to the cultivator and he is afforded every encouragement to carry it on, it will be useless. Merely improving tools without consider-

ing the conditions under which the man works, will not solve the problem.

Next to agriculture probably the greatest industry is the production of clothing. This may be used as a subsidiary industry to agriculture which, in our country, hardly occupies even half the working days in a year. If we can usefully employ the idle hours of the farmer that in itself will afford sufficient wealth to increase greatly the purchasing power of the people. This is a line in which a wise attempt has been made and considerable success achieved by the programme of work laid out by the All India Spinners' Association.

✓ There are also other industries which help to decrease the pressure on land by drawing off the idle population and providing work for them. We may divide these into (a) industries which affect the whole country because the products are in universal demand, and (b) cottage industries which provide curios and luxury articles.

Under the first group we may bring in occupations which are closely connected with the production of food from raw materials, such as flour grinding, de-husking of paddy, oil pressing, gurmaking etc. Then there are other industries which may provide

universal subsidiary occupations to the agriculturists such as bee-keeping, sericulture, lac cultivation etc. Then we have many occupations which touch definite communities but, at the same time, are spread over the whole country, such as tanning, paper-making, rope-making, basket-making, pottery, bricks, tiles, carpentry, blacksmithy, etc. These industries may well be called the main village industries.

Apart from these, under the second group we have cottage-industries for the manufacture of luxury articles and others, the demand for which may not be so universal but which are in use every day, such as soap making, printing, dyeing, works of art, metal industries etc. Unless we have our industries broad based and well organised to supplement each other the country cannot be an economic unit.

As we have already seen, international trade should only be confined to such articles as cannot be consumed locally because, owing to the present economic barriers to be met with even within our own country, it is not possible to ensure full returns to the producer. As long as this state of affairs continues and the producer has no hold on international markets and is not well enough equipped to understand their working, it will be suicidal for him to attempt to go beyond the borders of our land. As

far as practicable we have to attempt to convert raw materials into finished products before they leave the locality in which the raw material is found.

The All India Village Industries Association has been formed to carry out this function and the method adopted by this Association may be divided into three groups.

1. It tries to stop wastage and to convert waste materials to good purpose.
2. It attempts to conserve the resources at present available to the villagers.
3. It attempts to utilise profitably the hours of leisure and introduce such work as will increase the wealth of the people.

As an instance of the first item on the programme we may mention the question of nutrition, sanitation and hygiene. Situated as we are, man is the most important factor and motive power in our economic system. If he is allowed to remain in an under-nourished condition and is weakened by various diseases then production suffers. A balanced diet, therefore, becomes a necessity. As it is, many of our villagers have barely sufficient cereal to consume. They have practically no vegetables or other elements that are necessary to supply the requirements of the

body. It is therefore, a criminal waste for them to take whatever cereal is available to them in a nutritively depleted form as they now do. This is what happens, for example, when they get their rice polished in a mill, depriving the grains of the bran, mineral salts, oils, and pericarp, and leaving mainly the starch for food. It is not possible to go into all the details of the programme of the Association here, but this is stated merely as an illustration to indicate the method by which the problem is attacked.

In regard to the effort to conserve the resources at present available we may mention the attempt to utilise night soil and village waste in the form of manure, as well as the programme for the disposal of carcasses where by every part of the dead animal is used.

To illustrate the effort made to increase productivity we may mention the attempt to introduce subsidiary occupations such as bee-keeping, paper-making, lac culture etc.

The main purpose is to make production as broad based as possible and to aim at producing goods which the people themselves require rather than attempt the production of articles required by the wealthy. As long as we produce articles which are

in universal demand, such as simple cotton clothing, village champals, sleeping-mats etc., the problem of marketing does not arise. When production aims at supplying the needs of the wealthy, though the margin of profit may be higher, yet the difficulties of marketing shift the gains of the occupation to the middleman. Also the number of people who can be profitably occupied becomes very small as the demand for such goods is confined to the rich.

Our purpose should be to distribute wealth amongst as many persons as possible and not to concentrate it in a few hands. Where articles require a little help in their marketing the Association attempts to do this also by introducing the producer and the consumer to each other through the medium of certified shops located in towns and cities, but the main emphasis is not on such goods as require this help.

The Association keeps in mind the poverty of the masses and advocates only such industries as require little or no capital, need simple equipment, are easy in technique and the manufactures of which find a ready market. The raw material should be locally available but if it is imported then the cost of such raw material should bear a very low percent-

age to the total cost of the finished product. If brass sheets are imported from abroad and the beaten brass vessel sells at Rs. 4 of which Rs. 3 represents the cost of the brass sheets then obviously 75% of the price paid finds its way out into distant markets. The remedy is to find substitutes for such vessels and stop our purchasing power being transferred to distant place. Production should be centred round the needs of the villagers, and under present conditions international trade should be at a discount. Things that provide the villager with better food, clothes and shelter should be emphasised rather than articles meant for distant markets. Some missionaries have been attempting to introduce poultry-keeping in villages but their methods are not suitable. They introduce foreign birds such as Leghorns, Minorcas, Rhode Island Reds, and their crossbreeds. The eggs show a great improvement in size and the birds are fine, but the villager cannot afford to eat such fine eggs himself and so he sells them to city folk. The birds themselves are very expensive, need careful looking after and are not as resistant to disease as country fowl. If an epidemic comes the whole stock often dies. Such industry is speculative and, therefore beyond the capacity of our villagers. We would prefer to see an improvement in the eggs of the

country fowl and feel satisfied if the villagers themselves eat the eggs and sell only the surplus. Catering to a distant market makes them depend on the tender mercies of middle men.

When we import foreign articles we forget that we are throwing the bread of our children away to others and thus increasing the unemployed and partly employed. We are, in affect, using foreign servants. We are too poor to be able to do this. We cannot go on consuming without producing. We should try to see that all locally available raw materials are turned into finished articles before being marketed.

At present all our industries are slowly becoming curio trades. Every trade, the articles of which are widely used in our households, gives employment to several persons and the articles themselves are low priced. But the moment a trade shifts to cater for the curio hunter the article manufactured is a diminutive replica of the original and finds no market as a household article although it may fetch a higher price. The number of workers engaged in the trade accordingly diminish and middlemen appear to exploit the profits. Hence such curio trades are not really in the national interest.

As the programme stands women can play an unrivalled part in building our frame-work on a solid



foundation. Practically the whole of the programme lies within the sphere of women—sanitation, hygiene, nutrition, clothing and household requirements. If women will make up their minds that they will not buy goods which have been produced by exploitation and go in only for articles produced in a decentralised way, they will give a great impetus to the revival of our countryside and place the nation on a sound economic basis.

The Association also attempts to provide expert technical advice and help to improve our age old methods of production.

By such efforts if we can safeguard the masses from the exploiters, if we can give them employment to fill their idle moments, if we can direct their activity into industries which have a ready and known demand, if we can help to increase their productivity without resorting to predation, if locally available raw materials can be worked up in the most scientific way, then the nation will surely emerge from the slough of despond to a rock of hope and thence march on to prosperity.

## CHAPTER X

### International peace.

We have considered in the sixth chapter various factors which lead to strife amongst nations. We traced the seeds of dissension to the methods of economic production and the difficulties consequent on supplies preceding demands. In the previous two chapters we discussed methods of production which distribute economic activities amongst the masses. Where there is decentralisation of this type it is not possible for such small producers to combine and create a menace to international peace. Raw materials will be exploited in the locality in which they are found and the products will also be disposed of amongst the people. If there is any international trade it will be of small magnitude, and it will not entail the necessity of controlling the source of raw materials. Nor will the supplies which will be scattered and small require "the civilising of backward races" in order to sell them. Supplies will follow a natural demand and no violence will be needed to equate the two. Every man will get the fruits of his own labour, however small it may be, and there will be no opportunity provided to make one wealthy at the cost of another with the aid of

violence. If women control demand, production will follow a natural course and we shall not witness a world glutted with one kind of commodity while it lacks others. Nor shall we have to resort to violence to establish equilibrium. Man will realise his inner urge for self expression in his work and no violence will be needed to whip him on to further effort. Nor will there be any need to control raw material sources or markets with violence. A sense of human values will direct economic activity into right channels. Such being the case we shall render impotent the causes which are at the root of international rivalry, jealousies and competition. In so far as these causes are removed, or in the proportion in which they are minimised, the chances of war breaking out will also have been controlled. If this can be achieved, it will lead to human progress peace and the prosperity of all nations.

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# **AUTOMATIC RURAL RECONSTRUCTION**

**A SUGGESTION**

BY

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WITH A FOREWORD

BY

**The Hon'ble Mr. Justice M. N. MUKERJI, M.A., B.L.**

Judge, Calcutta High Court

CALCUTTA

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## FOREWORD

Nations have their cradles in villages, and it is so for India. But life here in the homes and the hamlets presents a spectacle of untold misery and unvariegated wretchedness. Malaria, Kala-azar and other malignant diseases in epidemic form scour the country, decimating the population year after year, and leaving the survivors to drag on a miserable existence. These scourges sap the health and energy of all : agriculture and industry perish ; the happy relations between the Government and the people are disturbed. The effects are felt in every status of society,—the life-blood of every social organism being drawn out, and public spirit, patriotism and philanthropy dying out for want of vitality on the part of the people who can find neither time nor energy to think of these things.

Other consequences, only too natural, follow. Rural areas are deserted in despair and people rush out to embrace the more costly living of cities, eagerly hoping to escape from disease and death. Sturdy hands cease to plough the field, vocations, hereditary in the family, are abandoned, and social and material economy is undermined. Taking to the life which people have to live in cities, those that come to live in them readily go to schools and colleges with the object of being educated not really for the sake of education, but only because they have nothing else to do. The ordinary

curriculum of general training right up to its very end is adopted, and an aimless and objectless course of study is pursued, resulting in unemployment,—in starvation, in disaffection, in despair.

These are facts about which there cannot be, nor is, any doubt or dispute. But what is the remedy? This question, I have found, is asked by many. But very few amongst them pause to think out or even to get an answer. And yet it is clear that matters have already come to such a pass, and things have assumed such a dangerous state that, unless some remedy is immediately administered,—some efficacious remedy which will serve to arrest at least for the time being the downhill descent that the country is fast plunging into—the whole country will go to rack and ruin.

In the *Automatic Rural Reconstruction* which follows, Mr. Ghosh has put before the public a *suggestion* which it is the duty of every true lover of India to peruse and ponder over. He is not an idealist or a faddist, but his is a mind scientifically trained and with a practical bent. He has sacrificed much in the cause which he stands for—not because his schemes are chimerical, but because his countrymen are apathetic. But the time for apathy is gone, and matters have become so very serious that immediate attention must be paid to the subject. What has to be done must be done *Now*, and tomorrow even will perhaps be *Too Late*.

I am far from suggesting that Mr. Ghosh's thesis is a complete catalogue of remedies that the country

is in need of at the present moment : he himself does not profess to put it before the public as such. But I am certain that it does *suggest* some of the remedies that must be administered either *Now or Never* in order to keep it alive. I am also confident that a perusal of the thesis will to a thoughtful mind open up other vista through which salvation may come.

Calcutta,  
Sept. 4, 1932.

M. N. Mukerj

## PREFACE

India is predominantly a rural country and a scheme for its improvement is primarily one of rural reconstruction. This, however, depends on hard personal and practical work, which is not ordinarily forthcoming, and on sufficient funds, which are far beyond the means of the rural people. Unless, therefore, it is proposed to leave the rural areas to their inevitable fate, recourse may be had to rousing widely the *spirit of social service*, which is uniquely latent in the country, although often parochial in its outlook, and which is strikingly in evidence whenever occasions arise. Moreover, it is true that Indians generally, and the rural people particularly, are proverbially charitable notwithstanding their poverty, and a reconstruction scheme, if any, must necessarily depend on labour of love instead of on payment. Accordingly, the reconstruction humbly suggested in this booklet is automatic in nature, as it consists solely in the practice of social service on practical lines, but so regulated as to stimulate co-operation (p. 62) and to admit of the application to daily life of the principles inculcated herein (p. 48).

*Secondly*, the country requires a careful lead to prevent it from going astray and a readable book impressing upon the youth of the country the utility of social service, and giving it a practical and sober shape, as mentioned above, *may well form a compulsory part of*

*school and higher educational curriculum.* The scheme herein outlined, which is only a suggestion and which is designed to serve the purpose in view, is consequently offered for consideration by the universities in India, the Board of Intermediate Education, the Inter-University Board and the Directors of Public Instruction, the present time being opportune for extended private enterprise for fostering an educational movement to promote peace and goodwill, which are particularly welcome on the eve of the ensuing constitutional change.

*Finally*, it may be mentioned that it rests more with the educational authorities and the provincial governments than with the ordinary public to take the initiative, the ideal of a "Junior Red Cross" and of other benevolent activities in the land being the essential factor of the scheme adumbrated and it is earnestly hoped that the appeal made in the introductory pages, in the concluding portion, in the summary and, finally, in the Appendix, will not fall upon deaf ears. The facts stated elsewhere in the booklet are further designed to stimulate private enterprise broadcast and to direct it on right lines, in order to enable the country to lay the foundation of rural reconstruction through co-operation and self-help despite financial stringency and other difficulties in the way.

The Foreword very kindly contributed by the Hon'ble Mr. Justice M. N. Mukerji, and the information furnished in the Appendix through the good

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offices of various departments and public bodies, will prove to be stimulating and I take this opportunity to convey my grateful thanks to all for the assistance they have so kindly rendered.

J. C. GHOSH.

SCHOOL OF CHEMICAL TECHNOLOGY,

*Calcutta, November, 1932.*

## INTRODUCTION

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### **An Easy Way to the Economic and Rural Uplift of India**

A nation lives in villages and not in towns. If this is true of any country, it is particularly so of India. Unfortunately, however, the village home of the bulk of the Indian people, who are still largely illiterate, is in a pitiable condition because of malaria and other scourges on the one hand and poverty on the other. Equally gloomy is the outlook of an educated youth who finds unemployment staring at him everywhere and who, in despair, is forced to join the ranks of the discontented and eventually to suffer from the consequences of his choice. The problem is how to better the lot of the Indian peasant, how to improve his village and its surroundings, and, lastly, how to ameliorate the economic condition of the people throughout. There is no money available, nor are there trained people on the spot, for the work of reconstruction to be seriously and scientifically undertaken. To find money is out of the question. Is it then possible to train men and women for the purpose within existing means and to employ them free of charge? If so, the matter resolves itself into one of direction of education to facilitate an *automatic reconstruction* of the country's rural and economic condition.



The matter, as it finally stands, really raises a vital issue and needs to be carefully considered from all points of view, as briefly summarised towards the end of the volume (pp. 47-48). There are educational institutions all over the country and education is progressing indeed in spite of economic depression. This is doubtless due to a widespread craving in the country for learning. The phenomenon is unique and may be taken advantage of, preferably to impart practical education along with the current curriculum and to turn out practically trained people, not as *amateurs*, but in the real sense, in order to provide some solution of the difficulty experienced.

*Ordinarily* the trained people, with a larger vision and a better knowledge of the country's resources, will find wider opportunities for remunerative work and will pursue, both in rural and urban areas, their *independent* professions, earning an honest living thereby. But, in their own interests,—further inspired by their liberal education—they will devote, in leisure hours, their scientific knowledge to useful purposes, for which better facilities may be obtained oftener in villages than in towns. It is open to these people to proceed on a small or a large scale, utilising, in the first instance, the untapped resources of villages, improving existing cottage or other industries, arranging for a rapid sale of indigenous products at a profit—a point which is often overlooked to their bitter experience later on—organising new industries, opening out thereby fresh avenues of employment, furthering scientific agriculture, pisciculture,

horticulture, or sanitary measures, popularising local herbs and drugs as simple remedies, undertaking health welfare and similar other social service work.

There is, however, another aspect of the case, presenting an entirely contrary view, which holds that the programme outlined is *utopian* and that it is yet premature to apply these ideas to Indian villages where the circumstances are extremely discouraging in most cases. There may be some force in the argument, there being instances of failure, which are not infrequent. Nevertheless it is a fact, as shown in the Appendix to this pamphlet, that a good deal of educational, social and economic progress in the country is due to private enterprise and to voluntary work. In any case, the situation will have to be faced, the village life improved, and the migration to towns arrested, as in other countries, and the whole scheme involved has been thoroughly discussed elsewhere in the writer's "New Chemical Industries" and "Technical Education" and, lastly, in his booklet on "Indian Education Problem—A Solution", which presents various aspects of education. In fact, this volume is in continuation of the paragraph on "Social Service and Rural Reconstruction" in pages 30—31 of the book entitled "Technical Education."

### The Problem and its Scientific Aspect

The question of practical education, which is briefly referred to in pp. 12-13, and for which a start is possible through a "Junior Red Cross" course (p. 48) as an integral part of school curriculum, is closely associated with university education and the co-operation of Indian universities is absolutely imperative. The present system of education is terribly wasteful. By some readjustment and co-ordination of work, which is urgently called for, the universities could achieve a great deal towards providing practical and productive training, instead of sending out largely helpless and unemployable graduates under the present conditions of a limited number of berths for an overwhelmingly large number of so-called qualified candidates who are annually swelling the ranks of the unemployed. This is a serious situation calling for immediate attention from administrative and university authorities.

A suggestion is offered here to represent the scientific aspect of the problem. The existing university laboratories could be adapted for practical work of *commercial* value and steps taken by them for organising an intensely practical system in co-operation with Banks, Business Firms, Farms and Factories. For instance, the universities could, without requisitioning extra funds and accommodation, arrange for practical and advanced courses in pharmaceutical chemistry, pharmaceutical botany, and pharmaceutical bacteriology. This varied, scientific, and practical education is just what is meant for a qualified pharmacist. A university

degree course in pharmacy is one of the proposals of the Indian Drugs Enquiry Committee. To prove that this is a practical proposal consistent with the needs of the country, this pamphlet is devoted to an examination of the genesis of the Drugs Committee and to a review of their recommendations (pp. 21-43).

In the books already referred to (p. 13), there are chapters on pharmaceutical education, furnishing full information on the subject. Still it will not be out of place to notice here how pharmaceutical education happens to be recommended by the Drugs Committee and how a qualified pharmacist, among others, would just be the person *voluntarily* to undertake the work of economic and rural reconstruction and to give a scientific outlook to the whole question. What is pre-requisite is necessary legislation to suppress the ubiquitous quacks and frauds and to get them replaced by a qualified body so urgently required, as disclosed in the report of the Drugs Committee. It is, therefore, well to see how pharmacy stands in India and how it assists in furthering the reconstruction desired and in solving, to some extent, the unemployment problem. Similar action may be taken by other scientific departments, as also *agricultural, commercial and banking* classes started by universities, to add an impetus to the reconstruction work, which it is otherwise hard to tackle. It is scarcely possible to take an exhaustive view of the position within the scope of this volume, which is naturally confined to a review of only one branch of practical science, namely, Pharmacy.

## Pharmacy in India

In publishing an article by the writer on 'Pharmacy in India' in January 18, 1930, issue of the "Pharmaceutical Journal," London, the Editor remarked :— "Pharmacy in India is in an inchoate condition, for which Mr. Ghosh proposes a legislative remedy". This remark, remarkable for its brevity, concisely represented the pharmaceutical position in India, as found over three years ago. The position still remains unchanged and the pity is that, although there was a detailed exposition of pharmacy in a pamphlet first published by the writer at Madras in 1917, and despite further efforts since made by him at Calcutta in various other ways, ( a synopsis of which will be found at pages 35-37 of the booklet entitled "The Indian Education Problem—A Solution" issued in 1931 ), it is not yet generally realised in India what pharmaceutical education is, how far that education contributes to the economic and rural uplift of the country, at practically no cost to the Government—a point now too important to be overlooked even on the excuse of pre-occupying political problems before the country—and, lastly, what place is assigned to the subject in the curriculum of modern universities in the West. It is also almost unknown in this country, even amongst the classes who are expected to be better informed, that pharmaceutical science, as cultivated in Europe and America, is a potent factor in the higher educational equipment of a nation and that it provides a fresh and an *independent*

avenue of respectable employment for educated Indian youths of either sex.

As explained in pages 35-66 of the booklet already referred to in pre-page, the School of Chemical Technology, Calcutta, has been trying hard for years to impress these view-points upon those classes of people who are particularly anxious to find middle class unemployment reduced, scientific agriculture developed, and indigenous Indian industries promoted. The Drugs Enquiry Committee's recent report has adduced further evidence in favour of stimulating the profession of pharmacy in India, at least as a health welfare measure, if not for anything else, and has made out a strong case for the encouragement of pharmaceutical qualification and training *first* by Indian Universities and, *secondly*, by legislation. The latest action taken since 1927 by the Calcutta School of Chemical Technology, in the directions now recommended by the Drugs Enquiry Committee, was entirely due to the interest kindly evinced by the Hon'ble Mr. Justice M. N. Mukerji as President of the Governing Body of the School and to the suggestion of the late Hon'ble Mr. S. R. Das for the matter to be taken up by a non-official member of the Legislative Assembly. The suggestion was actually carried out with the result as shown in the following extracts from the "C. & M. Gazette" editorial of September 3, 1928; the "Pharmaceutical Journal," London, of June 1, 1929, February 7, 1931, and May 28, 1932, respectively; "Practical Medicine,"

Delhi, of March, 1931 ; and the "Indian and Eastern Druggist," London, of July 1932.

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*Extracts from the 'Civil and Military Gazette', Lahore,  
Monday, September 3, 1928.*

Some time ago, also, a very practical Bill (by Mr. J. C. Ghosh of the Calcutta School of Chemical Technology), an outline of which we print to-day in another page, was drafted and submitted to a leading member of the Legislative Assembly, who, however, was too busy to be bothered with it to the extent of sponsoring it. \* \* \*. And there the matter would have rested for years had not the case been taken over by Colonel Gidney at the request of Mr. Ghosh.

"The announcement that Colonel H. A. J. Gidney, the president of the Anglo-Indian and Domiciled European Association, is to move the adjournment of the Assembly at Simla on Tuesday (September 4, 1928) to call attention to the fraudulent sale of highly adulterated quinine throughout India, is a striking indication of the widespread interest aroused by the disclosures in the *Civil and Military Gazette* regarding this vital question, \* \* \* ." "The ordinary citizen, however, is determined that India shall not continue to be a byword to the rest of the world in this matter and that unscrupulous mock-chemists shall not continue to tamper with public health for private gain. We,

therefore, wish Colonel Gidney all success in the efforts that he is to make to end a grave scandal."

*Extract from the "Pharmaceutical Journal", London,  
June 1, 1929.*

## INDIA

### The State of Pharmacy

"The Governing Body of the School of Chemical Technology, Calcutta, recently made representations to the Education Department of the Government of India on the urgent need for legislation to regulate the business and practice of pharmacy in India, but the Principal of the School, Mr. J. C. Ghosh, who is an ardent and indefatigable advocate of systematic pharmaceutical education, training and statutory qualification in India, reports that the Government's reply is non-committal. Mr. Ghosh points out that the most essential and momentous stage of the work of the Simon commission will soon be reached in England, and it will be a grave omission if the practical side of scientific and technical education, which is prerequisite for the industrial and professional development of India, and consequently of its future peace and prosperity, is not fully taken into account, and adequate provision is not made for it."



*Extract from the "Pharmaceutical Journal", London,  
February 7, 1931.*

## INDIA

### **The Drugs Inquiry Committee**

"In the Government of India resolution in virtue of which the above Committee was appointed, it is stated that "the necessity of some restrictive measures is obvious equally from the point of view of the manufacturer and dealer who wishes to carry on his business honestly, the medical man who expects results from the medicine he prescribes, and the consumer who is dependent upon both." The committee which was set up to recommend what legislative or other measures should be taken to regulate the manufacture, wholesaling and retailing of drugs in India, and the dispensing of them, held its first meeting in Madras on October 17 last, when a large number of witnesses were examined; and at the meeting in Calcutta on December 3, Mr. J. C. Ghosh, Principal of the Calcutta School of Chemical Technology, who took a leading part in the agitation that led up to the appointment of the Committee, gave evidence on the lines of a memorandum and replies to a *questionnaire* put in by him, in which he strongly urged the passing of an All-India Pharmacy Act with provision of compulsory pharmaceutical education and training as the only remedy for the existing anomaly in the drug trade. The draft Bill put in by Mr. Ghosh was forecast in its essential features in an article by him (P. J., January 14, 1928, p. 40). In the evidence given before the committee, proposals were made for the

institution of a central analytical and research laboratory for drugs to certify their purity and strength; the establishment of a Board of Control in Pharmacy; the production of an Indian Pharmacopœia, and the introduction of a Pharmacy Bill. In view of the existing economic crisis in India, it will not be possible to accept any expensive scheme or to vest authority in an entirely or predominatingly official body. The nucleus of an Indian Pharmacopœia is available in the indigenous drugs included in the Pharmacopœias of Europe and America, and under a Pharmacy Act a Board of Control would regularise pharmaceutical business and practice in India almost without cost to the State.

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*Reprinted from "Practical Medicine," Delhi,  
March, 1931.*

### **The Drugs Enquiry Committee for India— Its Necessity**

The Drugs Enquiry Committee appointed last September, 1930, by the Government of India to inquire *inter alia* into the extent, to which drugs and chemicals of impure quality or defective strength are imported, manufactured or sold in British India, is of particular pharmaceutical interest both in this country and abroad. Of all civilised parts of the world, India appears to be the only country where there is practically no restriction on the importation, preparation and sale of adulterated or inferior drugs and where the practice of pharmacy is not restricted to duly qualified persons. The result is obvious. The country is reported to be

flooded with worthless preparations and there is nothing to prevent an unqualified person from posing either as a medical practitioner or as a pharmacist and from offering anything as a drug. The situation, which would have been considered as most intolerable even for a moment in any other civilised country, is regarded as normal in India, simply because of the fact (1) that the majority of the people, who are poor, depend largely, while ill, on indigenous systems of treatment, which are subject to no laws, no standards and no examination and (2) that any interference therewith will be misconstrued and met with strongest opposition. This is one side of the situation. There is, however, another side which is as follows :—

Since the introduction into India of western medicine with the early British traders under the Hon'ble the East India Company, about 400 years ago, the western medical science, as much as other sciences, has been encouraged, but the ancient indigenous systems of *Ayurvedic* and *Unani* treatment, which are spoken of above as subject to no laws and which are looked upon in many quarters as nothing but quackery, have received no State encouragement, perhaps for nearly two centuries in the case of the *Unani*, and for about twelve centuries in the case of the *Ayurvedic* system. During the last two centuries, the British doctors have established in India a new system of medicine known as the "Allopathic," a branch of western medicine, which has steadily grown under State encouragement. There is another branch of western medi-

cine, which is known as "Homœopathy." This has met with no better favour from the State than is meted out to the ancient systems. The allopathic medicines and their practitioners are, therefore, in a special advantageous position while their rivals, if any, are those designated as *Ayurvedic Vaidis*, *Unani Hakims*, Homœopaths, Spiritualists, Herbalists, etc, who are doubtless quacks so far as they do not possess recognised qualifications by passing through a regular course of training in recognised institutions. Such quacks exist more or less in all countries, although, under civilised conditions, it is rather a pity if quacks are put under no restraint from assuming the position definitely belonging to duly qualified practitioners, either medical or pharmaceutical. But the imposition of restraints carries responsibilities as well. Regulations may first be laid down and institutions established. Occasions will then arise for punishing infringements of regulation. At present, there is hardly any recognised institution in India for training either in indigenous or other systems of treatment outside allopathic and it appears, therefore, premature to lay any restriction on their practice. The case is, however, otherwise with regard to allopathic treatment. With commendable British enterprise, perseverance and method, medical schools and colleges for allopathic medicines, as also hospitals and dispensaries, have been established throughout the country under properly constituted medical services. Further, the number of medical graduates and licentiates annually turned out have also given rise to an independent medical profes-

sion. The medical relief thus provided is fully appreciated by the people and it is understood that nearly 50 million patients are annually treated by allopathic doctors, although the exponents of *Ayurvedic* and *Unani* medicines claim that 90% of patients are dependent on them. Whatever may be the percentage in each case, the influence of western medicine has been largely extended in India and there appear to be sufficient reasons for the State to take such steps as are adopted in other countries to expel charlatans from among the ranks of the recognised medical and pharmaceutical profession and to ensure the purity of the allopathic drugs which they prescribe.

In the Government of India Resolution appointing the Drugs Enquiry Committee it is admitted that "the necessity of some restrictive measures is obvious, equally from the point of view of the manufacturer and dealer who wishes to carry on his business honestly, the medical man who expects results from the medicine he prescribes, and the consumer who is dependent upon both." It is further admitted that malpractice is not only carried out in India, but that some European firms export inferior and adulterated medicines specially manufactured for the eastern bazaars.

The above admission is a serious one and is apparently due to the pressure which might have been exerted by the League of Nations, particularly with regard to the standardisation of biological products, and, further, by a long continued agitation.

The Committee held its first official sitting at

Madras on the 17th October and examined a large number of witnesses at Calcutta during nearly three weeks from December 1, the Calcutta evidence being more varied and interesting than at elsewhere. The main points, which seem to emerge out of these evidences, are :—

1. Creation of a central laboratory ;
2. Establishment of a Board of Control ;
3. Preparation of an Indian Pharmacopœia ;
4. Adoption of a Pharmacy Bill.

Having regard to the present financial crisis in the country and the stringency which it will perhaps be necessary to enforce for years, any expensive scheme will probably be out of the question and the only solution, which may afford practical relief, appears (1) to set up a self-supporting non-official organisation on the lines of the Pharmaceutical Society of Great Britain and (2) to co-ordinate the work of existing public health laboratories in order to avoid the expense of a central laboratory for biological assays.

Details of a self-supporting organisation were published by the writer in the "C. & M. Gazette", Lahore, of September 3, 1928, and a draft Pharmacy Bill was submitted by him to the Drugs Enquiry Committee in December last. A large amount of information on drugs is furnished in pages 58—97 of the writer's book on "Technical Education" (Thacker) and in Part II of his pamphlet on "Indian Education Problem," which also shows the salient features of the proposed Pharmacy Bill, the extent of drug adulteration in India, and

the urgent need for pharmaceutical education in the country. It is interesting to note that, while a drugs enquiry is being held in India, the Pharmaceutical Society of Great Britain is amending the Pharmacy & Poisons Act and the legislation that may be adopted here may well include the amendments that may be carried out in England.

J. C. Ghosh.

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*Reprinted from "The Indian and Eastern Druggist",  
London, March, 1931.*

### **Indian Drugs Enquiry Committee—An Explanation**

The Drugs Enquiry Committee recently appointed by the Government of India, ostensibly in pursuance of a resolution adopted by the Council of State in March, 1927, but really in response to a long continued and persistent agitation, held its first sitting at Madras on the 17th October last and, on arrival at Calcutta, has examined a large number of witnesses since December 1st, the opinions expressed by the Calcutta witnesses being more varied and interesting than at elsewhere, in view of the wider importance of Calcutta as a trade, professional and educational centre. But the more interesting feature of the Calcutta sitting is that the committee has, apparently for the first time, been faced with adverse criticisms on its constitution, necessity and *bona fides*. In an editorial article in its issue of December 7th, the *Amrita Bazar Patrika* was the first to take

the offensive. This was quickly followed, on December 10th, by a similar but-sober indictment in a long letter from Dr. K. S. Ray, M.L.C., which purported to represent the views of the independent Indian medical profession.

Criticisms are generally very welcome, and unless there is an opposition view, the public are placed at a disadvantage in respect of arriving at an unbiassed and judicious conclusion. Accordingly the *A. B. Patrika* has rendered valuable public service by presenting the dark side of the Drugs Enquiry Committee, and the writer is thankful for the opportunity he has thus been afforded to explain the position as an outsider, from what he knows of the subject from his experience of over 30 years. A brief rejoinder was published over his signature in the *Patrika* of December 11th, and a more detailed explanation is now given below.

From the Government of India Resolution of August, 1930, it appears that the only cause which led to the appointment of the Drugs Enquiry Committee was a resolution passed in the Council of State on March 9th, 1927, urging the control and standardisation of medicinal drugs. There was, however, practically nothing in the last August Resolution as to what action was being taken by Government since 1927, and as to what had preceded the Council of State resolution. In fact, the history, as far as is known to the writer, commenced more than half-a-century ago, when the Government of India established several drug factories in India for the supply of pure, standardised and locally manufactured medicines to Government hospitals, both



military and civil, as also to non-government charitable institutions. In 1917, the writer first published a pamphlet on "Drugs Manufacture—What it means," wherein he explained the highly scientific technique involved, the danger arising from use of inferior and adulterated drugs and the necessity for a regular training in the line. In 1919, a further pamphlet was issued, urging the need of scientific cultivation, collection, drying and marketing of indigenous Indian drugs and of local manufacture therefrom of various B. P. preparations. As supplies of crude drugs and manufactured products from outside India were then cut off by the last war, the pamphlet attracted a good deal of attention in India and abroad. Thereafter, the establishment of the Tropical School of Medicine, Calcutta, with a Pharmacological Department to undertake *inter alia* indigenous drugs research and, further, the issue of duty-free and concession-rate rectified spirit, added an impetus to the local manufacture of medicines. There was a competition, both among local manufacturers and also with imported drugs, with consequent price cutting, which encouraged unrestrained adulteration, particularly when there was no law nor trained staff in the country to control importation, preparation, and sale of drugs, except to a very limited extent exercised by the Excise and Customs Departments, and, if possible, by municipal areas. This limited control did not, however, concern itself with the potency and purity of drugs, and the danger, to which the country was consequently exposed, was so apparent that, during 1919-21, the writer made use of the editorial

columns of *Indian Medical Record*, Calcutta, to emphasise, now and then, the need for an Indian Pharmacopœia and for pharmaceutical training to ensure standardisation of drugs. Subsequently, as a result of his representation in 1922, the Excise Department, Bengal, issued orders in 1924, threatening the withdrawal of excise permits if the preparations made by permit holders did not conform to the standards laid down in the British Pharmacopœia.

Considering the technical character of the enquiry, which only a trained pharmacologist and a biologist could undertake, and having regard to the necessity for claims of at least major provinces and for communal and legal interests to be represented on the committee, the Government of India could not arrive at a better decision otherwise than by selecting, as they did, the head of the premier pharmacological department at Calcutta as President, with a biologist of the Haffkine Institute, Bombay, a Madras barrister, a Calcutta trade representative and a Mahomedan member of the Legislative Assembly, as members. Moreover, the President, who is an Indian with reputed sympathies for indigenous systems of medicine, is exploring possibilities of these medicines and is adding illuminating chapters to modern pharmacological knowledge by his brilliant researches. The mere fact that he (Colonel Chopra) belongs to the I.M.S., affords no reason to look upon the committee with suspicion and to credit it with ulterior motives until and unless the committee, by its findings, justifies our apprehensions. The criticisms

already levelled at the committee constitute a sufficient warning, and it is confidently hoped that the high responsibility which the committee has shouldered and which affects the well-being of millions of India, will be discharged to the satisfaction of the people who have their last say on the subject through their representatives at legislatures and through the public press.

The press comments and the evidences already published raise several important points, and some remarks thereon will not, it is hoped, be out of place here. On account of the anticipated heavy deficits in provincial and central revenues, and in view of continued financial stringency until restoration of normal conditions, any costly scheme is outside practical politics, however essential it may be to provide a central board and a central laboratory for drugs control in India. On the other hand, these two central ideas are practicable with an inexpensive scheme if a non-official and a self-supporting organisation on the lines of the Pharmaceutical Society of Great Britain is set up for India in accordance with the memorandum and the draft pharmacy Bill submitted by the writer to the committee. This non-official organisation—call it a board, an association, or by any other name—will also do away with the I.M.S. scare apprehended underneath the committee. Besides, if no interference with *Ayurvedic* and *Unani* systems is contemplated, the intention may be clearly stated by defining a "drug" to include everything as used in and understood by the British Pharmacopœia, 1914, and its subsequent editions, alterations, and

amendments thereof, for pharmacopœial work and applications. This definition will not preclude *Ayurvedic* and *Unani* authorities from co-operating with their new organisation and from assisting in compilation of an Indian Pharmacopœia gradually. Further, there is another point which need not be unduly pressed. This is the question of biological assay under "Therapeutic Substances Act," which applies only to a limited number of drugs, the majority requiring to be assayed chemically, microscopically and physically. The whole of this assay work is particularly the province of the pharmaceutical profession, but admittedly outside the scope of the general medical practitioner in all civilised countries, and there seems to be no reason why the case should be otherwise in India. It is true that the biological assay is generally carried out by the medical profession, but the pharmaceutical curriculum in the West has been revised to include this assay too in pharmacy. The clear issue, therefore, is to introduce into India a Pharmacy Act to meet *immediate* and eventual requirements and its acceptance, on the recommendation of the Drugs Enquiry Committee, will not only justify its appointment and the expenditure incurred, but the misgivings that the Committee has given rise to will disappear, industry will thrive and a new field for useful employment and research will be opened for Indian youths.

J. C. GHOSH.

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and "Antiseptic", Madras, March, 1931.

**Statement showing concisely the position in India as regards importation,  
manufacture, sale, analysis and dispensing of drugs and the steps  
necessary to improve the situation.**

( The statement shows at a glance what may be contained in a voluminous report )

Note :—B. P. means British Pharmacopœia.

*Galenicals* are preparations of drugs generally obtained from the vegetable and animal kingdoms, the preparations being made either with alcohol or with non-alcoholic agents, such as aqua, acids, ethers, honey, syrups, oils, fats, etc.

1 Imported articles.	2 Local manufactures.	3 Bazaar & Dispensary stocks.	4 Dispensing.	5 Remarks.
<p><i>B. P. Drugs.</i> (a) Galenicals (alcoholic). (b) Ditto, (non-alcoholic). (c) Chemicals. (d) Crude drugs of vegetable, animal and mineral origin.</p>	<p>As explained in the I. M. G. editorial in July, 1929 issue, firms in India are manufacturing B. P. drugs under (a), (b), (c), as also Non-B. P. drugs, under (e), (f) and</p>	<p>Except in the case of firms like Messrs. Bathgate &amp; Co.; drugs obtainable from wholesale and retail druggists, groceries and dispensaries are not generally accept-</p>	<p>Under existing rules passed compounding are required to be employed on dispensing. In practice, however, the rule, according to newspaper reports, appears to be more</p>	<p>The proposed legislation will doubtless be restricted to drugs of "Western Medicine," i.e., of British Pharmacopœia and of similar other Western Pharmacopœias (American, French, German, etc.). These pharmacopœial drugs are those mentioned under (a), (b), (c) and (d) in column 1, while</p>

*Non-B. P. Drugs:*

(e) Biological products: (Group I. Vaccines, etc.) (Group II. Organic arsenicals and antimonials). (Group III. Insulin and other gland products).

(f) Invalid and Infant foods including cod-liver oil, condensed milk, etc.,

(g) Other proprietary, (patent preparations).

The "Indian Medical Gazette," July, 1929, issue (p. 389), writes that "in India no regulations exist either to prevent the importation or the manufacture within the country of valueless or even harm-

(g). The number of these firms are increasing and it is highly desirable that in the interests of indigenous development and of consumers, these local manufactures should be undertaken by trained and qualified staff only and that the products must be up to the required standard. Some infant industry, unless properly staffed, may be handicapped first, but will thrive by proceeding on right lines. Apart from a menace to public health, irresponsible manufactures must some day come to a standstill, there-

table blindly. Also it is not possible to have Batbgate & Co., all over India, in every part of a town and in every village. The practical solution seems to lie in creating trained staff not only for manufacturing, but also for undertaking chemical and biological assays and for providing necessary inspecting staff. The whole question is one of higher pharmaceutical education as in the West. This is quite distinct from medical education and is understood to be controlled by *non-official* phar-

honoured in breach than in observance. There was a time when even passed compoundingers were not necessary in India. It is now in the fitness of things to abolish compoundingers gradually and to introduce higher pharmaceutical education as in Europe and America, creating qualified pharmaceutical chemists for dispensing as well as for the work mentioned in columns (2) and (3). This will give rise to an *independent* profession to carry on (1) pharmaceutical, (2) public health, (3) scien-

Non-B. P. drugs under (e), (f), (g) are generally those of "Extra Pharmacopœia."

The "Therapeutic Substances Act" recommended by the I. M. G. article is to apply to Non-B. P. drugs under (e), which are of recent origin, that Act having been introduced into England only in 1925, while the majority of B. P. drugs under (a), (b), (c) and (d), also most of the Non-B. P. drugs under (f) and (g) will have to be dealt with chemically, physically, microscopically and bacteriologically, for which a Pharmacy and Poisons Act seems suitable. Only a few drugs under (a), namely, ergot, digitalis, strophanthus, require to be assayed biologically under the *Therapeutic Substances Act*. In these circumstances and, further, in view of the importance of pharmaceutical education both in peace and in war, a Pharmacy and

1 Imported articles.	2 Local manufactures.*	3 Bazaar & Dispensary stocks.	4 Dispensing.	5. Remarks.
<p>ful medicines." With keen competition all round and with free use of advertisements the position created by no drugs control in India is better imagined than described and calls for urgent action.</p>	<p>by creating a serious industrial disaster. Necessary precaution should, therefore, be taken at once.</p>	<p>macentical organisations in all civilised countries with minimum expenditure to the State.</p>	<p>tific agricultural and (4) rural medical work, relieving a good deal of middle class unemployment, initiating a new line of work of very high social and economic value at a nominal cost to Government.</p>	<p>Poisons Act, which has been in force in England for over 50 years seems preferable in India. The I. M. G. writes that "determination of the real quality or genuineness of drugs on the market is outside the scope of the general medical practitioner; he looks to State for guidance and protection". Everything connected with this <i>determination</i>, also with manufacture, sale and dispensing of drugs, belongs to the pharmaceutical profession. The educational curriculum of this profession is a special one and does not yet fall within the scope of Indian University science courses. The whole scheme is a public health measure and it is a</p>

matter in which India, according to I. M. G., is far behind all other countries. For these reasons, and from all other points of view, as detailed in columns 1, 2, 3, and 4, the creation in India, at practically no cost to Government, of the pharmaceutical profession by special legislation, namely, a Pharmacy Act, is urgently called for. More information on the subject is furnished in chapters on "Drugs Manufacture—What it means," "Indigenous Indian Drugs," and "Chemical Industries" published in "New Chemical Industries" (Butterworth), in pages 58-87 of "Technical Education" (Thacker) and in the pamphlet just issued on "Indian Education" (Part II)—Industrial and Pharmaceutical Education.

[ 35 ]

J. C. GHOSH



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London, May 28, 1932, the "*Indian Medical Record*," Calcutta, May, 1932, "*Practical Medicine*," Delhi, June, 1932 and the "*Indian & Eastern Druggist*," London, July, 1932.

**Report of the Drugs Inquiry Committee,  
India, 1930-31—A Review**

The All-India Medical Council Bill, which was introduced in the Legislative Assembly on the 23rd March, 1932, after a long-drawn controversy over the necessity and the principles of the Bill, has excited a good deal of public interest simply because of the opposition proceeding from the independent medical profession of India. It is confidently hoped that a similar Bill to provide for a similar necessity may shortly come up before Government if the consideration of the report of the Drugs Enquiry Committee held in 1930-31 is not interfered with in any way.

In a Government of India resolution, issued in January, 1932, appreciation was expressed for the services rendered by the Chairman (Lt. Col. R. N. Chopra, I.M.S.) and other members of the Drugs Enquiry Committee, and the thanks of the Governor-General were conveyed for their valuable report. The public opinion, so far expressed on the subject, shares largely the same appreciation, it being generally felt that the cautious, comprehensive and sympathetic report of the Committee has apparently dispelled the suspicion which

loomed large when the Committee first undertook their arduous task and it may now be unhesitatingly asserted that, if a non-official and quasi-voluntary organisation on the model of the Pharmaceutical Society of Great Britain, as adumbrated in a previous article ("P. J."; London, January 14th 1928, p. 40), is finally recommended, the draft Bill, which will emerge out of the report, will have a comparatively smooth sailing, and will not evoke such opposition as has unfortunately characterised the progress of the Medical Council Bill.

The Committee's investigations appear to have been carried out under ten main heads, namely, (1) British Pharmacopœia Drugs and other approved medicinal preparations, indigenous or otherwise; (2) biological products; (3) organo-metallic compounds; (4) indigenous Indian Drugs used in indigenous systems of medical treatment; (5) encouragement of the drug industry in India; (6) patent and proprietary medicines; (7) the profession of pharmacy; (8) quinine policy; (9) the Medical Stores Department; (10) production of an Indian Pharmacopœia.

The position under each of the heads specified above has been thoroughly explored by the Committee, which made the following, among other, recommendations, involving administrative and financial measures :—

(a) **Administration**—(1) Central (Federal) legislation to control drugs and the practice of pharmacy in India by means of either a combined Drugs and Pharmacy Act or two separate Acts; (2) Establishment of a

central laboratory either at Bombay or at Calcutta to test all biological products and organo-metallic compounds, to train public analysts and to co-ordinate the work of provincial laboratories; (3) Institution of provincial laboratories, one in each Province, under a public analyst to analyse and report on all drugs, both imported and locally made, other than those taken up by the central laboratory; (4) Creation of a central "General Council of Pharmacy" with provincial pharmaceutical councils, partly elected and partly nominated, to assist the Governor-General in Council in enforcing regulations for the control of drugs and in maintaining a uniform system of pharmaceutical training and education throughout India; (5) Control of both imported and local proprietary and patent medicines by registration, by prohibition and regulation of advertisements and by other methods; (6) Registration of manufacturers, importers and retailers of drugs, also of places where drugs are manufactured or sold; (7) Registration of qualified pharmacists; (8) Encouragement of the drug industry in India (a) by requiring Indian Universities to give training in advanced pharmaceutical chemistry and to institute a degree on the subject, (b) by controlling the quality of crude drugs, (c) by compiling an Indian Pharmacopœia and (d) by certain administrative and financial measures.

(b) **Finance**—It is proposed that revenue for administrative and other purposes should be raised by (1) Realisation of fees for registration and licensing, and for the testing of samples; (2) An extra 5 per cent import duty; (3) An additional 20 per cent. duty on all

patent medicines, imported and local, with undisclosed formulæ; (4) A stamp duty of minimum 12½ per cent. on locally manufactured patent medicines; (5) An export duty on drugs obtainable only from India. The Committee was not in a position to investigate in any detail the financial aspect of their recommendations. But it may be pointed out that an easy source of revenue, amply to cover all preliminary extra expenditure, will readily be created, if at least one or two of the Committee's recommendations, namely, an extra 5 per cent. import duty or an additional 20 per cent. duty *ad valorem* on patent medicines, are given effect to in the first instance. During recent years there has been a phenomenal rise in the value of the import drug trade to over 2 crores of rupees annually, and a 5 per cent. extra import duty will produce an annual income of ten lakhs, which will be further enhanced by the imposition of a stamp duty or an additional 20 per cent duty on patent medicines. These duties, which are apparently unobjectionable, may be included in the Annual Finance Bill, and meanwhile, all steps may be taken to have a Pharmacy Act on the Statute Book without avoidable delay.

The Committee has wisely refrained from making any specific recommendation in regard to practitioners and drugs under the indigenous systems of treatment, but the committee's suggestions in that respect have already created among the classes concerned an awakening which appears to be hopeful. Further, the Committee has followed the Calcutta Municipal Act, 1923, in defining "adulteration" and "misbranding", the two

great evils in the Indian drug trade, and no legislation will, it is feared, be effective, as is amply shown by the condition of drugs in municipal areas in spite of Municipal Acts, unless and until the controlling bodies, contemplated by the proposed creation of a central "General Council of Pharmacy" with provincial pharmaceutical councils and qualified pharmacists, are brought into existence by a *separate* Pharmacy Act, as alternately recommended by the Committee, if a *combined* Drugs and Pharmacy Act is not considered feasible under the present financial stringency.

As is pointed out in the *Indian Medical Gazette* editorial in the issue of Jany., 1932, "such legislation as exists in regard to drugs is associated with excise and customs and is designed to protect the coffers of the State rather than the health of the individual." It is abundantly clear from the findings of the Committee, whom we congratulate on their thorough and impartial report, that a Pharmacy Act is imperatively called for in the interests of public health. It has also been shown in the series of articles published by the writer that this enactment will introduce a salutary reform in the Indian educational system, creating new avenues of employment, reducing unemployment and stimulating agriculture and industry. It is, therefore, earnestly hoped that our legislators will not remain indifferent to a legislation of this nature, which is, perhaps, no less urgent than the framing of a constitution for India.

There is another point which may be noticed here, The Committee recommends that, for five years from

the passing of the Pharmacy Act, the existing staff of experienced dispensers (compounders), or those who qualify as such during the period, may be allowed to be registered as pharmacists. This proposal may lead to complications, as in the case of licentiates under the Medical Council Bill. The difficulty may be obviated by allowing the specified classes of compounders to be registered as 'dispensers' for the purposes of the Act, and not as "qualified pharmacists".

The distinction drawn seems to be essential. Apart from the anticipated complications referred to, a qualified pharmacist is the only dependable and recognised person to carry out the responsible duties of manufacturing and analysing drugs, although dispensing, an equally responsible work, may be the legitimate duty of an experienced compounder or of a registered medical practitioner. The purity and strength of drugs cannot be guaranteed, nor will any organisation for the required control of drugs be workable, unless there is a trained staff of qualified pharmacists whom it is impossible to improvise from among medical practitioners and science graduates without a previous training in pharmaceutical chemistry and pharmaceutical botany. It is, therefore, necessary for Indian Universities to institute forthwith, wherever possible, a degree course in pharmacy, as recommended by the Drugs Committee, and for the Calcutta and other Presidency town Municipalities to co-operate with Government to strengthen existing laboratories in order to facilitate the operation of the Drugs Act as soon as it is enacted.

Finally, in connection with the appointment of the Drugs Inquiry Committee in 1930, there was some previous history which it may be interesting to note at the present juncture. The interest is further enhanced when it is remembered that even the Committee expressed surprise that the deplorable condition brought to light eluded vigilance and reform so long. The history is briefly as follows :—

In 1917, while employed as Pharmaceutical Chemist, Government Medical Stores Department, the writer issued a pamphlet on "Drugs Manufacture—What it means," and pointed out therein what mischief was being done by adulterated and inferior drugs, and how urgent was the need for such pharmaceutical education and drug control in India as obtained in other civilised countries. In 1919 a second pamphlet, entitled "Indigenous Drugs—their scientific cultivation and manufacture," was published, in which the writer put up a strong plea for a Food and Drugs Act and the scathing remarks made therein on prevailing adulteration in drugs on the Indian market were endorsed by the "*Indian Medical Gazette*" in an editorial article of March, 1919. More agitation was continued through medical journals and leading newspapers in India, also through the "*Indian and Eastern Druggist*" and the "*Pharmaceutical Journal*", London. In 1924 a draft Bill was submitted to the Bengal Council, but the Government of India withheld their preliminary assent simply because of a technical objection to inclusion of pharmaceutical education in a Food and Drugs Bill. In 1926 a book on "Technical

Education" was published, which devoted a chapter to pharmaceutical education, drug analysis, standardisation, etc. In 1927 a resolution was passed in the Council of State on the subject of drug control in India. In July 1928, the "*C. and M. Gazette*"; Lahore, undertook a vigorous campaign, exposing serious adulteration in drugs. In September, 1928, an adjournment motion was moved, and questions were asked in 1929, by Colonel (now Sir) H. A. Girdney, I.M.S., at the Legislative Assembly, which brought the matter to a head, while representations were submitted to the Government of India by the Indian Merchants' Chamber, Bombay, and by the Calcutta School of Chemical Technology, the latter also publishing a series of articles in London Pharmaceutical Journals in 1928-30, with the result that the Drugs Enquiry Committee was set up in September, 1930.

J. C. Ghosh.

As explained in the above résumé, the present writer, as Principal of the Calcutta School of Chemical Technology, and in other connections, has since 1917 been actively and systematically agitating for legislative recognition and regulation of pharmacy in India, and is the author of a number of publications in support of this object. These contributed in some degree to the setting up of the Drugs Inquiry Committee and to the formation of the view that a central Pharmacy Bill *per se* is the only adequate instrument of reform. It is equally true, as shown in the foregoing review (pp. 20-43), that a self-supporting, non-official, and quasi-voluntary organi-



sation on the model of the Pharmaceutical Society of Great Britain, coupled with the co-ordinated effort, of university, Imperial, provincial, and municipal laboratories; is what the country can afford to have under the present circumstances (pp. 14-15, 37, 39-41 and 46-47).

A word of caution may be uttered here. The course of discussion in this pamphlet is never intended to imply that pharmaceutical education offers the only scientific solution possible. Doubtless there are various other ways of facing the situation, as briefly referred to in pages 12-15, and indeed the question is dealt with elsewhere from other points of view in preceding publications. They do not, however, pretend to be the last word on the subject and more suggestions from people in other walks of life are equally helpful. The immediate problem is the economic and rural uplift of India. This includes the unemployment question, which constitutes a serious menace to public peace and prosperity. There are no unemployment doles in the country, nor there appears to be any other popular provision, so far as is known, for periodically computing the extent of, and for relieving, the distress. The consequence is that there is a gradual decline in the purchasing power of the people, resulting in contraction of business everywhere and in loss of revenue, which may ultimately create administrative difficulties. We cannot, therefore, afford to look askance at the problem and to regard the limited discussion here as closing a chapter of work, which was originally started by the writer in 1905 with a paper on "The education that

India needs." In fact, this pamphlet is preliminary to opening a new chapter of reconstruction, in which all are invited to co-operate, arriving thereby at a complete and an abiding solution, irrespective of whether the matter is an Imperial or a provincial concern. Individually we had better be thinking and suggesting rather than be sitting and carping.

### CONCLUSION

Owing to the writer's advancing age the foregoing extracts (pp. 21-43) are perhaps the last of the series of articles devoted, during more than a quarter of a century, to hastening a change in the current educational system in India and to promoting a new outlook upon life. The recent announcement of an impending change in the matriculation curriculum of the Calcutta University is memorable in the sense that a century-old system, replete with a glorious past in various ways, has been found to need an immediate overhauling and that the step recommended may be a signal for further changes yet to come. For nearly a hundred years the principle of education in India has been to Westernise its civilisation, as originally envisaged by Macaulay. The miracle, which has consequently been achieved during the period, has been possible for the reason that a vast store-house of materialistic knowledge was thrown open, through the English language, to a people immersed for centuries in non-materialistic ideas. The contact of two opposite schools of thought has done its work. The non-materialistic people now seem to

appreciate that they must be practical at least in so far as it is necessary to keep their body and soul together. The prevalence in the country of English education, so long in thoughts, words and deeds, is providential if it succeeds in imparting a practical turn to Indian education, in solving unemployment, and in promoting public health, through a balanced blend, material and spiritual, as will set an example both to the West and to the East, evolving a civilization where the twain will meet.

Having regard to all the circumstances of the present situation in the country, it appears that an immediate start might be made in the required direction if Indian universities, which are autonomous institutions would only follow the lead of modern universities elsewhere, with a practical outlook, within the limits of their resources. As suggested in pages 14-15 of this pamphlet, the existing equipment and some reshuffling of staff will suffice for the institution, in the first instance, of a Degree in Pharmacy under the curriculum of Indian universities. This will prepare the country for a great move towards a practical realisation of the ideal referred to above. This will also facilitate the acceptance, without an extra cost, of the pharmaceutical reforms recommended by the Drugs Enquiry Committee and the establishment of a non-official organisation of pharmaceutical control on the lines obtaining in England, as previously explained. Further, it may be noted again that the profession of pharmacy is open to both sexes and that, if it is once en-

couraged by legislation, as recommended by the Committee, there will be a rapid growth of the profession, replacing the untrained and unscrupulous chemists and spreading itself all over the country. Moreover, as the profession offers an independent career, the pharmacist's centre of work being primarily in the pharmacy itself, unemployment will be reduced and a potent source of communal wrangle over the loaves and fishes of office and of consequent unrest in the country, will be largely removed. Finally, a qualified pharmacist will, by virtue of his training, constitute a valuable asset in war time, a local and honorary sanitarian in peace, a ministering angel on epidemic outbreaks, a dependable guide on population problem, also a genial companion and an educationist under other circumstances. Other independent and *scientific* professions, as also guilds represented by crafts and artisans, may be similarly organised and a spirit of friendly helpfulness and co-ordination of activities promoted all round.

### SUMMARY

The scheme so far detailed may leave a vague impression unless its main outlines are summarised. The fundamental points are :—

(1) No extra cost is proposed, nor is any new principle involved (17.9-12 + 15);

(2) The University authorities, the Legislature, and the public to take necessary action and to hasten thereby the creation of an educated class, on practical lines, who, instead of being drones of society, will serve the country and the government in every possible way ?

(3) This spirit of service and of friendly helpfulness towards other people to be inculcated in all boys and girls from their very primary stage of education, particular attention being paid to villages and mofussil centres, where the standard of life and outlook generally happens to be very low and where social service work is urgently called for as an automatic and inexpensive remedial measure ;

(4) What appears to be most suitable to this end is to introduce in schools the programme of the "Junior Red Cross," which is a voluntary international organisation for the promotion of health and practice of service ;

(5) Upon the ground plan thus arranged there will be a structure standing on *practical science*, on co-operation, and on co-ordination of work, and finding its consummation in the economic and rural uplift of India, which is earnestly desired throughout this volume ;

(6) Moreover, the many-sided activities of the "Junior Red Cross," namely, educational, hygienic, humanitarian, and international, will vitalise both the rural and the urban areas through the school children, who are really the future hopes of their country ;

(7) If these activities happen to be combined, at a later stage, with a preparation for a *scientific and industrial* career, as is contemplated, for instance, by pharmaceutical education, the all-round advantages to ensue, will not only guarantee what is desired, but will render such progress to be possible in a decade as may not ordinarily be achieved in a hundred years ;

(8) What is needed, therefore, is a whole-hearted co-operation, not only of the educated classes in appreciation of their duty to the masses, but also of the Directors of Public Instruction and the higher authorities, with whom it rests to accord necessary sanction. After all the situation appears to be hopeful, as explained in the following Appendix, which may be carefully gone through and the principles whereof applied to daily life.

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## APPENDIX

### A Glimpse into the work in Progress for the Educational, Social and Economic Uplift of India

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Part played by Private Enterprise and  
otherwise in Promoting the Threefold  
Progress—A Brief Outline

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#### I

#### EDUCATION

So far as modern education in India is concerned, the famous minute of 1835 by Lord Macaulay is generally referred to as the starting point of Western education in this country. But to avoid a misunderstanding as to India's past achievements, we may as well refer to what has been brought to light by recent

Archæological finds and to what Professor MaxMuller thought and wrote about the country. Addressing the candidates of the Indian Civil Service in 1832, Professor MaxMuller observed:—"If I were to look over the whole world to find out the country most richly endowed with all the wealth, power and beauty that Nature can bestow—in some parts a very Paradise on Earth—I should point to India. If I were asked under what sky, human mind has most fully developed some of its ancient gifts, has most deeply pondered on the greatest problems of life, and has found solutions of some of them, which will deserve the attention even of those who have studied Plato and Kant, I should point to India. And if I were to ask myself from what literature we, here in Europe, we, who have been nurtured almost exclusively on the thoughts of the Greeks and the Romans, and of one Semitic race, the Jewish, may draw that corrective which is most wanted in order to make our inner life more perfect, more comprehensive, more universal, in fact more truly human—a life not for this life only, but a transfigured and eternal life—again I should point to India".

Leaving aside such pondering over the past, and returning to the current work in progress, to which alone this Appendix relates, we find that the educational policy of the Government of India has been consistently to encourage private enterprise as is apparent from the following extracts from the Education Despatch of 1854, paras 61, 62 and 86:—

"We look forward to the time when any general

system of education, entirely provided by Government, may be discontinued with the gradual advance of the system of grants-in-aid, and when many of the existing Government institutions, specially those of the higher order, may be safely closed or transferred to local management under the control of, and aided by, the State".

"We confidently expect that the introduction of the system of grants-in-aid will very largely increase the number of schools of a superior order; and we hope that before long sufficient provision may be found to exist in many parts of the country for the education of the middle and higher classes, independent of the government institutions, which may then be closed".

The fundamental principle of gradual *deprovincialisation* of government educational institutions, as enunciated above, was upheld in the Secretary of State's Despatches of 1859, in the Education Commission (Hunter Commission) Report of 1882—83, the Government of India Resolution of 1904, the Sadler Commission Report of 1917—19 and in the Report of the Bengal Retrenchment Committee presided over by Sir R. N. Mookherjee. In other words, there is a direct encouragement by Government of private enterprise to undertake primary, secondary and collegiate education and local efforts have amply justified themselves by the extensive development of non-government institutions throughout the country. No better proof of successful independent effort and of its efficiency is needed than what is provided by the progress of the universities at Aligarh



and Benares, respectively, and of educational institutions in other parts of India, namely, the well-known Ferguson College at Poona, Pachaiyappas College at Madras, D.A.V. College at Lahore, prominent Missionary colleges and schools in the provinces, Blind Schools, Deaf and Dumb Institutions, Women's University at Poona, and colleges elsewhere, the Bangalore Institute of Science, Bose Research Institute and the Indian Association for the Cultivation of Science at Calcutta, Tagore's Viswa Varati at Bolepur, Technical Institutes, and a large number of private colleges and schools in Bengal, in the Indian States and elsewhere. Private enterprise has also largely contributed to the growth of universities in the country, there being now eighteen universities as against the three original Universities of Bombay, Madras and Calcutta. In the domain of Western education the record of private enterprise is obviously exceptional. There is, however, need for more of such enterprise which, it is hoped, will be forthcoming not only for the educational, but also for the social, economic, and public health welfare of India. If this hope is realised—and there seems to be ample ground for hoping so—the present economic depression and the financial stringency experienced everywhere will not interfere with further progress and *Automatic Rural Reconstruction*—a reconstruction by private enterprise, which alone is suggested in this volume—will be a reality in the near future.

There is no reference as yet in this chapter to the social and cultural side of education. Physical and

moral training are as absolutely essential as intellectual culture for the normal growth of an individual, as also of a nation. For the cultural development we depend more upon self-help than upon outside support and there is no justification whatsoever for these vital aspects of education being overlooked, which is regrettable, however earnest we may be in our pursuit of *academic* education. The university and other educational authorities are being awakened to their duty to look after the physical welfare of their wards as well, but the brunt of spade work will have to be borne by private enterprise. There were indigenous games, dances, music, *kathas*, *kirtans*, social functions, organisations, usages and customs for promoting these cultural and social sides and the need for reviving these institutions was never more urgent than now. The spirit of social service, to which there is an earnest appeal in the Preface, is to be sedulously cultivated if we are to regain the position which we have unfortunately lost in social amity and cultural superiority. The various welfare movements, some of which have already reached the rural areas, and the women's educational, social and industrial organisations, which have come into existence almost everywhere, are hopeful signs for India's future and may be consistently encouraged on sober lines to stimulate an all-round educational progress, there being unfortunately as yet hazy ideas here as to what education should comprise, what its essentials are, and what should first engage the attention of the country. Character, discipline and an appreciation of commonweal are

apparently prime considerations in education and a chapter has been devoted to elucidating "The Meaning of Education" in the writer's book on "Technical Education."

## II

### SOCIAL SERVICE (A)

#### **Anti-Untouchability Movement**

Private enterprise in India is not confined to education alone. It is in evidence in other directions as well. The radical social changes, which are already foreshadowed by the Anti-Untouchability Movement set on foot by Mr. Gandhi's Poona Pact and which may be revolutionary in several respects as being entirely opposed to orthodox Hindu ideas, will also depend on private enterprise for their fruition. There is possibly some danger ahead if private enthusiasm on either side is allowed to be misdirected. No less far-reaching were the changes brought about by *Buddhism* in India and later by *Sikhism* and *Vaishnavism*. But in the present instance considerable caution is necessary and Dr. Ambedkar seems to be quite right in laying stress more on the economic, educational, and social progress than on spectacular demonstrations, such as temple entry and inter-dining. The *All-India Anti-Untouchability League*, which has commenced to function, the *Servants of India Society*, and other organisations working on similar lines, will doubtless consider all the view-points and take such con-

certed measures as will best implement the Poona Pact, preferably on the line of least resistance. It is gratifying to note that the League has already taken necessary action, confirming the programme of Dr. Ambedkar; There are various other ways of giving expression to the enthusiasm created and, although the feeling behind is essential for doing away with centuries-old prejudices and customs, there is no reason for deviation from the right path dictated by a sense of justice unless it is in serious conflict with other equally cogent grounds. Moreover, every stage of reform must be furthered by peaceful and unobjectionable methods. This appears to be the view often expressed by Mr. Gandhi either in reply to queries about inter-dining, etc., or otherwise. Further, his article on "The Caste System" in the 8th December, 1920, issue of "Young India", as well as his recent replies, seem to satisfy an impartial critic, or even an orthodox Hindu open to conviction, and as democracy is absolutely inconsistent with the obnoxious exclusiveness of orthodoxy, Mr. Gandhi's views on caste distinction, which constitutes the bed-rock of Hinduism, deserve to be widely read and appreciated everywhere in India, irrespective of whether the present agitation against untouchability continues or not.

Briefly stated the views are :—

"Temple entry and use of all public institutions are essential factors in the field of removal of untouchability. There should be the same relations with the untouchables as are prevailing between all other castes. Dining with the untouchables is entirely a question of belief, but

this is not one of the essentials in connection with the removal of untouchability". These views as well as those in his recent statements confirm what Mr. Gandhi wrote in "Young India" in December, 1920, the relevant portions therefrom being as follows :—

(*Extracts from "Young India", December 8, 1920.*)

### The Caste System

• • They argue that the retention of the caste system spells ruin for India and that it is caste which has reduced India to slavery. In my opinion, it is not caste that has made us what we are. It was our greed and disregard of essential virtues which enslaved us. I believe that caste has saved Hindus from disintegration.

But like every other institution, it has suffered from excrescences. I consider the four divisions alone to be fundamental, natural and essential. The innumerable sub-castes are sometimes a convenience, often a hindrance. The sooner there is fusion the better. The silent destruction and reconstruction to sub-castes have ever gone on and are bound to continue. Social pressure and public opinion can be trusted to deal with the problem. But I am certainly against any attempt at destroying the fundamental divisions. The caste system is not based on inequality. There is no question of inferiority, and so far as there is any such question arising, as in Madras, Maharashtra, or elsewhere, the tendency should undoubtedly be checked. But there appears to be no valid reason for ending the system because of its

abuse. It lends itself easily into reformation. The spirit of democracy, which is fast spreading throughout India and the rest of the world, will, without a shadow of doubt, purge the institution of the idea of predominance and subordination.

The spirit of democracy is not a mechanical thing to be adjusted by abolition of forms. It requires a change of the heart. If caste is a bar to the spread of the spirit, the existence of the five religions in India—Hinduism, Islam, Christianity, Zoroastrianism, and Judaism—is equally a bar. The spirit of democracy requires the inculcation of the spirit of brotherhood, and I can find no difficulty in considering a Christian or a Mahomedan to be my brother in absolutely the same sense as a blood brother, and Hinduism that is responsible for the doctrine of the caste is also responsible for the inculcation of the essential brotherhood not merely of man but even of all that lives.

One of my correspondents suggests that we should abolish the caste, but adopt the class system of Europe, meaning thereby, I suppose, that the idea of heredity in caste should be rejected. I am inclined to think that the law of heredity is an eternal law and any attempt to alter that law must lead, as it has before led, to utter confusion. I can see very great use in considering a Brahmin to be always a Brahmin throughout his life. If he does not behave himself like a Brahmin, he will naturally cease to command the respect that is due to the real Brahmin. It is easy to imagine the innumerable difficulties if one were to set up a court of punishments

and rewards, degradation and promotion. If Hindus believe, as they must believe in re-incarnation, transmigration, they must know that nature will, without any possibility of mistake, adjust the balance by degrading a Brahmin, if he misbehaves himself, by re-incarnating him in a lower division, and translating one, who lives the life of a Brahmin in his present incarnation, to Brahminhood in his next.

Inter-drinking, inter-dining, inter-marrying, I hold, are not essential for the promotion of the spirit of democracy. I do not contemplate under any circumstance a universality of manners and customs about eating, drinking and marrying. We shall ever have to seek unity in diversity, and I decline to consider it a sin for a man not to drink or eat with any and every body. In Hinduism, children of brothers may not inter-marry. The prohibition does not interfere with cordiality of relations, probably it promotes healthiness of relationships. In Vaishnava households I have known mothers not dining in the common kitchen, nor drinking from the same pot, without their becoming exclusive, arrogant, or less loving. These are disciplinary restraints which are not in themselves bad. Carried to ridiculous extremes, they may become harmful and if the motive is one of arrogation of superiority, the restraint becomes an indulgence, therefore hurtful. But as time goes forward, and new necessities and occasions arise, the custom regarding inter-drinking, inter-dining and inter-marrying, will require cautious modifications or rearrangement.

Thus whilst I am prepared to defend, as I have always done, the division of Hindus into four castes, as I have so often said in these columns, I consider untouchability to be a heinous crime against humanity. It is not a sign of self-restraint but an arrogant assumption of superiority. It has served no useful purpose and it has suppressed, as nothing else in Hinduism has, vast numbers of the human race who are not only every bit as good as ourselves, but are rendering in many walks of life an essential service to the country. The sooner Hinduism purges itself of this crime the better, if it is to be recognised as an honourable and elevating religion. I know no argument in favour of its retention and I have no hesitation in rejecting scriptural authority of a doubtful character in order to support a sinful institution. Indeed I would reject all authority if it is in conflict with sober reason or the dictates of the heart. Authority sustains and ennobles the weak when it is the hand-work of reason, but it degrades them when it supplants reason sanctified by the still small voice within."

However conflicting the views expressed in other statements may appear to be, it is clear from the foregoing extracts, the portions marked being specially noted, that all the reform contemplated for the present is to create a change in Hindu mentality so that the caste Hindus may accept the depressed classes as their equals and admit them to all the privileges open to other castes. But it is not proposed to abolish the primary castes, nor to encourage inter-drinking, inter-dining and



inter-marrying, and these restrictions, it is thought, may be retained, without interfering with the spirit of democracy, until they are swept clean either from considerations of convenience, or by sheer popular will. There is no use calculating when the day of reckoning will come and the clear facts, as they stand, may be accepted without demur. These views are clearly re-affirmed in a comprehensive programme recently issued by the Anti-Untouchability League and if enthusiasts on both sides refrain from indulging in excesses and misrepresentations, there need be no controversy which is likely to arise from orthodox protests. Assuming, however, that protests are unavoidable, it may be pointed out that, under the forthcoming constitution, with or without joint electorate, the abolition of untouchability, against even the frantic efforts of orthodoxy, is inevitable as soon as the votes of the depressed classes begin to count, the transfer of political power to the masses being a deciding factor in the dissolution of barriers of untouchability and in the creation of a solidarity which was never attained, nor dreamt of before, either in pre-historic or modern India. This appears to be a sufficient warning to all cautious people and we should make the best of a bad bargain if we still hold that castes have any meaning apart from their use as economic divisions and as instruments of biological (cultural) evolution.

## III

## SOCIAL SERVICE (B)

Under any circumstance a new social reconstruction will ensue from the present upheaval, thanks to the historic fast of Mr. Gandhi; and private enterprise will not be lacking to hasten the change. More reconstruction in other directions is equally possible if there happens to be a powerful stimulus to private enterprise just as there has been one for the removal of untouchability. To cultivate a spirit of sacrifice and of friendly helpfulness towards others, not as individual idiosyncrasies, but in an organised form, as was nobly exhibited by that illustrious lady, Florence Nightingale of Crimean fame, is a worthy object, perhaps no less worthy than the craving for current education. The latter, however, appeals more readily to the *intelligentsia* than the spirit of sacrifice which is opposed to the innate selfishness in human nature. But man is also made after the image of God and sacrifice is inherent in human nature too. The difference is that the spirit of sacrifice requires to be roused by steady practice while the prevailing educational fervour is readily excitable. Schools of boys and girls offer room for practice of service under control, and the spirit of sacrifice may be cultivated, on right lines, as a part of their school curriculum, if the "Junior Red Cross" course is introduced in schools as already urged in this pamphlet (pp. 9, 14 & 48). This is an essential point and should not be lost sight of. The "Junior Red Cross" is the children's branch of the Red Cross, which is a world movement.

fully co-operated with Government in doing away with several social abuses and inspired the Samaj with a Christian spirit, which gave the Samaj a lead for sometime in social work. But the spirit of service is not a monopoly of a particular denomination alone. There are a large number of social service societies working in this country and what is needed is some arrangement, preferably the publication of a handbook, which this pamphlet is designed to furnish, for popularising the idea through schools, the cultivation of the spirit of service being no less essential in education than a subject of general information. What is known as *khairat* amongst our Islamic brothers, is sacrifice as a part of their daily duty. So universal is this spirit among the Mussalmans that large charities are maintained out of *khairat*. Other communities are equally prominent in this direction and forms of *khairat* abound in India. In somewhat organised shapes there are hospitals (generally provided by the Parsee community), *dharamsalas* (rest houses) by the Marwaris, refuge and rescue centres, famous temples and *Asrams*, homes for widows, orphans, the blind and the infirm; and more efforts, public and private, are needed for such institutions to grow and to multiply. Indeed a nation's greatness and virility are measured by the extent of its spirit of sacrifice, coupled with its capacity to shoulder responsibility and to understand the other man's point of view. This spirit of social service receives a new impetus when it is displayed on an organised basis, as in flood and famine relief works. Groups of people work together on these occasions

and as mass action is more demonstrable, organised forms of social service in India are similar to the Red Cross movement in Europe. In this line too India's achievements during the *Buddhistic* period still stand unsurpassed and the country is coming forward again under the activities of *Ram Krishna Mission, Servants of India Society, Hindu Mission, Arya Samaj Social and Educational Work, Society for the uplift of Depressed classes, Servants of Untouchables Society*, and various other kindred societies for welfare work, namely, the University Students' Welfare, Labour Welfare, Child Welfare, Health Welfare, Humanitarian Association, Tuberculosis Association, Ambulance Association, Physical Culture Societies, Boy Scouts, Girl Guides, Social Service Leagues and the Women's Educational and Industrial Work sponsored by the Saraj Nalini Association, Lady Bose's Home and other bodies. Institutions like Kalimpong Colonial Home, Sir Daniel Hamilton's Gosaba Settlement in the Sunderbans and Theosophical headquarters at Adyar (Madras) are also very worthy examples of social service work by private enterprise and are most encouraging for the country's advancement.

As a pioneer movement, the Indian Red Cross Society has organised numerous centres of health work and there is a chain of public health activities throughout the country. All these institutions, which are working against difficulties and occasional failures, and whose efforts require to be co-ordinated wherever possible, are further examples of private enterprise and are designed to stimulate the youth to more voluntary

and combined work, which will bring *Automatic Rural Reconstruction* nearer to fruition. More examples of *joint voluntary labour* and of team work could be cited if it were possible to do so within the limited space available. The same difficulty precludes a detailed reference to the co-operative movement which ranks high in social service work. Co-operation is the key-note of all welfare work, and in passing we may refer to the Co-operative Hospital Aid Society, Co-operative Anti-Malarial Society, Co-operative Insurance, Banks, Buying, Selling, Farming, etc. It is true that examples are better than precepts, and this pamphlet will more than gain its object if, with the examples cited, it helps people from their school days in emulating private enterprise for promotion of commonweal, and in assimilating this spirit of service in their own character and daily life. Doubtless the world is progressing, and there is a growing change for the better to make people care-free, healthy and literate.

According to Indian traditions, (which encourage *private* social service in every home, either in the form of *khairat* or of daily service to the poor calling at the door, in preference to *organised* social service), there is a popular variety of social service noticeable chiefly in connection with the principal *festivals*, or ceremonies such as marriage, *sradh*, sacred thread, etc. Unfortunately, their utility has mostly been allowed to be misunderstood through religious misconceptions, and the spirit of contempt, which has grown under this misconception, has not only atrophied the social life of the

country, but has given rise to mischievous tendencies and criminal instincts instead, there being ordinarily nothing except festivals to keep ordinary human interests in India soberly engaged. Indian festivals are mostly religious, but they are invariably attended with certain social functions, such as feeding the poor, etc, which used to create fellow-feeling and *esprit de corps* among all ranks and communities. It is a national misfortune to be deprived of festivals in India, chiefly because of the mentality of the educated and well-to-do classes, who refuse to return to their villages, or to observe social rites, and we must do our level best to revive the innocent social life by all means, both in rural and urban areas, in order to promote goodwill which is badly needed everywhere at the present juncture.

Festivals serve as great educational forces, rendering life sweeter, happier, and consequently healthier, indeed, and are designed to facilitate *automatic rural reconstruction*. It has been explained in the Preface and elsewhere (pp. 8, 12-15, & 52) that a reconstruction by private enterprise, by voluntary work, and by a change in the present system of education, is what we are aiming at. Festivals and other similar institutions represent simple methods to meet our purposes through co-operation, self-help, and social service, which feature conspicuously in this pamphlet. Needless to say that the more are these simple methods taken advantage of, the better is the chance of hastening the desired reconstruction by economic uplift and in other ways as are particularly referred to in the following chapters.

## IV

## ECONOMIC DEVELOPMENT

The economic development of India is largely dependent on improvement in the condition of its peasantry, this class constituting the predominating population of the country. The improvement, however, rests on several factors. The first and foremost is agricultural prosperity both in crops and in cash. But, even with bumper harvests and larger yields, no prosperity is possible unless there are fair prices obtainable from a steady demand for Indian produce of agriculture, arts and industry, and unless the people are healthy, educated, industrious, and are in enjoyment of all trade, credit, marketing and other facilities including security of life and property. Never were these aspects of life more scrupulously and comprehensively attended to in India than during the enlightened British administration of the country. It is true that India prospered in several respects in olden days while in the zenith of her hoary civilisation, and later during the Mahomedan period. But an all-round progress, with an eye to both spiritual and material advancement, with peace and unity reigning in the country, with improved means of communication, education and irrigation, and with frontiers securely defended, was a dream which approached realisation only on the advent of British rule. During the last 150 years there has been a rapid progress in all directions, the whole country, even up to its hitherto inaccessible parts, being gradually opened to trade, also to free inter-communication.

and the prospect of a greater India with British backing is now in sight. Gratitude is a virtue in Indian character generally and will be largely in evidence everywhere if the broad facts, however brief, with regard to the improvements in progress, are brought to public notice, preferably through village schools and higher educational institutions and, if possible, through rural broadcasting as well. Commencing with agriculture, (valuable information thereon having been very kindly furnished by Dr. G. P. Hector, M.A., D. Sc, Director of Agriculture, Bengal, for which the author is extremely grateful to him), we may briefly state the following facts :—

### **Agriculture**

It is not generally known that the Government Agricultural Department endeavours to secure the economic advancement of the agricultural population by popularising the adoption of better methods of farming, improved varieties of crops, fertilisers and implements. One of the most important functions of the Department is the evolution of improved varieties of staple crops. This work involves a considerable amount of scientific research which it is impossible for the ordinary farmer to undertake. The research work of the Department is mainly conducted at Research Stations where the chemical, botanical and fibre problems are dealt with, while problems connected with animal husbandry are investigated at Experimental Cattle Farms. At these centres scientific investigations are also conducted into such problems as the production of improved cereals,



pulses, oilseeds, jute and sugarcane, as well as the suitability of various manures, the control of insect pests, etc.

The results of these investigations have already proved to be of considerable value in increasing the agricultural wealth of the country, and with a view to securing their widespread adoption in common agricultural practice, the following facts, which relate chiefly to Bengal, and which give a fair idea of what is being done in other provinces, may be made widely known through educational institutions all over the country:—

### Jute

It is well known that *India* enjoys a monopoly in the production of jute. This is a chief commercial crop of the country and deserves to be maintained at its high price level by all possible means, e.g., restriction of area under cultivation, marketing facilities, provision of some arrangement similar to the bonded warehouse system, advances against produce in deposit at the warehouse, or under transit, and some kind of legislative or administrative protection against an abnormal fall in price.

To the improvement of this crop much attention has been given by Government in Bengal where the bulk of the jute produced in India is cultivated. Strains have been selected, which give considerably larger yields than the varieties commonly grown.

The departmentally improved races of jute are of two kinds, viz., *C. Capsularis*, with a round seed-pod, and *C. Olitorius*, with a long seed-pod. The improved races of *C. Capsularis* are named Kaky-Bombai "R.85", and "D.154" while "Chinsura Green" is the name of the

improved race of *C. Olitorius*. On an average these improved races of jute yield at least one MAUND PER BIGHA more fibre than ordinary local races in a normal year. One or other of the improved races will suit every part of the jute-growing tract in North Eastern India.

It is roughly estimated that departmentally improved jute is being grown on about 12 PER CENT. of the total area under jute. It has also spread on a large scale outside Bengal into Bihar and Assam.

It is obvious that the cultivation of departmental jute will enable a given quantity of fibre to be produced on a smaller area than would be possible with ordinary races. Thus, if the maximum quantity of fibre is not required, as is the case during the period of trade depression, a balance of land becomes available for producing food or other crops. This is an exceptionally important point and may be impressed upon the peasantry through schools.

Improved jute seed may be had on application to Mr. A. L. Godden of Narainganj; the Fibre Expert to the Government of Bengal, Central Farm, Ramna; the Deputy Directors of Agriculture at Dacca, Rajshahi and at the Writers' Buildings, Calcutta, or to the local Agricultural Officers.

The price of the seed is Rs. 30 per maund for *C. Capsularis* and Rs. 40 per maund for *C. Olitorius*.

### Rice

The following departmentally improved races of rice have been evolved, and are available to the public:—

- i) Dacca No. 1 Indrasail: A medium-coarse,

transplanted *aman* paddy ripening about 14th December. Suitable for Eastern and Northern Bengal for areas where the soil is not too light, and where moisture lasts well up to November. It does very well on the lower transplanted paddy lands of the Madhupur jungle.

(ii) Dacca No. 3 **Dudshar** :—Very similar in all respects to Dacca No. 1, but ripens about a week earlier. Hence it is more suited for lighter soils and higher situations.

(iii) Dacca No. 17 **Latisail** :—This is an oval-shaped, coarse, heavy yielding paddy, as early as No. 2. It can be grown with success, on the same type of land as Nos. 1 and 2 and will also do well on slightly higher situations. It has a short straw. It can be recommended for double-cropped lands and to those who wish an early heavy yielder, but no quality.

(iv) Dacca No. 21. **D x I (34)** :—This is an early strain of an *aman* hybrid, known as D x I (34). It is a paddy of very superior quality and a fairly heavy yielder. It is recommended for medium lands and for those who wish quality and not much yield.

(v) Dacca No. 2 **Kataktara** :—A medium-fine, highland *aus*, late ripening paddy, which does best on fertile highland, with plenty of moisture and in rotation with a rabi crop. It is not so suitable for double-cropped paddy land.

(vi) Dacca No. 4 **Surjamukhi** :—A medium-fine, highland *aus*, very similar in all respects to **Kataktara**

(vii) Dacca No. 6 **Charnock** :—A very fine high-

land *aus* paddy, ripening earlier than Dacca Nos. 2 and 4, and suited to lighter soils.

(viii) Dacca No. 14 **Dhairal** :—This is a coarse highland *aus* paddy of almost the same duration as No. 11 and suitable for the same type of land as Dacca Nos. 2 and 4. It is a very heavy yielder and is liked by the cultivators for their own use. It has established an excellent record all over the province wherever it has been tried.

In Eastern and Northern Bengal, in localities suited to them, all the above races are capable of giving about 1 maund a bigha more than the local cultivators' seed. In the past season about 13,818 maunds of seed were distributed, either by the Government farms direct, or through the agency of small seed-farms run by private individuals, agricultural associations, union boards, or co-operative banks. During the year 1931—32 the number of such agencies other than Government farms growing seed for distribution amounted to about 245. In Naogaon, in Rajshahi district, practically every member of the Agricultural Association, amounting to about 4000, is now growing departmental seed.

The total area under departmental seed is difficult to estimate with any degree of accuracy, but is not less than 600,000 acres.

Similar selection work is in progress with deep-water paddies, with the important *Balam* races of Bakarganj and with varieties suited to Western Bengal districts of Midnapore, Bankura and Birbhum. Already three strains of *Balam* paddy are being multiplied

for distribution at various centres in Barisal, and in Bankura arrangements are being made to multiply and distribute selected strains through irrigation societies.

At Chinsurah two very heavy yielding pure line strains, viz., Chinsurah No. 1 Nagra 6816 and Chinsurah No. 2 Bhasamanik have been isolated. They have been under trial in various parts of the province and have established a very good record. They are good paddies combining yield with quality.

India is the largest exporter of rice in the world; three fourths of the rice exported are contributed by Burma where the Agricultural Department has selected varieties to meet the special requirements of the foreign market. One of the Bengal varieties, which is known as *Patnai* paddy, forms the principal foreign export of Bengal rice. Consequent on a recent fall in the supply of first class *Patnai* rice, and as rapidly increasing competition is being met from Italian, Egyptian, Spanish & American rice in European markets, an interesting investigation into *Patnai* rice is being undertaken at Chinsurah, for which a contribution of Rs 1,50,000 has, it is understood, been obtained from the Imperial Council of Agricultural Research.

Seeds of the departmentally improved varieties of paddy may be had on application to the Deputy Directors of Agriculture at Rajshahi, Dacca and the Writers' Buildings, Calcutta; the Economic Botanist to the Government of Bengal, Central Farm, Ramna; or to the local Agricultural Officer.

## Sugarcane

Although sugarcane is grown on an area of about 3 million acres throughout India, the country is obliged to import annually a very large quantity of white sugar, at a cost of nearly 15 crores (10 million sterling). This is partly due to the fact that the average yield of the canes cultivated in India is probably the lowest in the world. A remarkable stimulus to effecting an improvement in outturn has been received from the work of the Imperial Cane-breeding Station at Coimbatore.

As a result Tanna, a Mauritius cane, was first produced as a good drought resister. It was also not much attacked by jackal and in most parts it stood up against insect and fungoid pests. Latterly, experiments with many Coimbatore varieties have proved Co. 213 a very suitable cane for most parts of the province. The average yields and the quality of the *gur* are considerably better than those given by Tanna. This cane, Co. 213, has many other good qualities, is rapidly spreading and will soon have been introduced into most of the cane tracts of the province. It is everywhere very popular and, under ordinary conditions, it gives an average yield of 20 maunds of *gur* per bigha, but a yield of up to 35 MAUNDS is far from exceptional.

Other promising canes are under investigation.

Sets of Tanna and Co. 213 canes can be obtained on application to the Agricultural Chemist to the Government of Bengal, Central Farm, Ramna. The price per 1,000 sets is Rs. 5 at station of origin.

In view of the impetus imparted to sugar industry in India by the imposition of an import duty on foreign sugar, the following facts are of particular interest to agricultural classes, to students, and to capitalists anxious to be engaged in agricultural industry :—

### Sugar Industry In India

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#### RECENT DEVELOPMENTS

Mr. Noel Deerr, the distinguished sugar chemist of international repute and an authority on Indian sugar, visited the Scientific Society of the Harcourt Butler Technological Institute, Cawnpore, on Sept. 24, 1932, and reviewed the improvements that have been made in the design of sugar machinery during the last half century. In his very illuminating lecture he mentioned that some of the most improved plants were initially installed in India.

During the discussions that followed, it was brought to light that the average yield of sugar in Indian factories was much less than the corresponding average for Java sugar factories.

To an external observer the probable causes that may lead to sugar loss are inadequate control of the agricultural aspect of sugar manufacture, viz., cultivation of select varieties which are high yielders with a high sugar content. In spite of the fact that the Agricultural Department has been busily engaged in isolating some

very good varieties, e.g., Co. 290, Co. 213, etc., the effort for the regular supply of sets to the cultivators in sugar producing districts needs to be augmented. With the exception of those factories which have their own cane fields, it is a great problem to get a regular supply of canes on account of fragmentation of holdings in India. The result is that cane reaches the factory frequently several days after it is harvested. Sometimes, if too much cane is brought to the factory, the crushing may be delayed by a day or two when the cane is left in wagons or lies in a heap at the factory. The purity of the juice falls from 88.2 to 81.0 during transit and storage.

We would be failing in our duty if we did not point out, particularly at the present moment when our Indian capitalists are rushing to put so much money in indenting sugar machinery, that it would be saner to have, say 5,000, acres of standing sugarcane crop before launching into this drastic expenditure. They will have simply to keep the factory shut up for the greater part of the season if a regular supply of cane is not ensured.

One of the points of discussion was whether Mr. Noel Deerr was aware of any factories in India using *chars* for refining sugar. The answer was in the negative and the probable cause of the absence of refining plants put forward was that the Indian buyers were not in a position to pay the high price of refined sugar.

It may be said that, with a very few exceptions, the quality of sugar produced is not of the desired standard. Different varieties of cane sugar in the market were analysed at the Technological Institute. Whereas British



refined sugar gave an ash content of nil, Hungarian refined sugar gave 0.012, one Indian sulphitation factory cryst 1, gave 0.295 and another 0.070, whilst Indian Desi sugar gave 1.15 and 1.40 respectively. Does the above not point to the fact that our Indian capitalists are too much after making money, giving the people only third grade sugar? Is it not the time when our chemists should set heart and soul for the improvement in the yield and quality of sugar by improved chemical control?

Two important items, which are likely to be lost sight of, are:—

(a) **Filtration** : Mr. Noel Deerr made a hurried survey of the filtration methods. What is essential is to get an absolutely clear filtrate after clarification free from suspended impurities. With the exception of carbonation factories, there are perhaps no factories where the filtration is effective. The most common method of resorting to bag filtration does not give the desired effect. Better results might perhaps be obtained by taking resort to a combination of settling and filtration. Neglect of this brings about undesired effect giving impure sugar.

(b) **Addition of a refining plant** : After clarification and filtration, the juice still retains some colouring matter, which can be removed by adding chars. There are many vegetable chars having remarkable decolourising properties, for instance, Suma Carb. Use of vegetable chars would not affect the religious susceptibilities of the Indian people. The addition of a refining plant for the treatment of crude cane sugar with the char should not

entail loss of sugar more than 1.3 per cent. An additional char-reviving kiln will have to be installed for the re-use of the char.

In spite of the pious desire of sugar manufacturers 50 years ago not to do anything with the chemists in their sugar factories, there seems to be adequate work for chemists in Indian factories for the coming 15 years. It is time when the Indian capitalists should pay more attention to installing research laboratories in their sugar factories and take all steps to avoid over-production, which is likely to arise as in the case of Jute, bearing in mind at the same time that sugar is not as nutritive as *gur* and that in India some day the latter may be more popular than its refined variety.

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### Tobacco

As regards tobacco the position is that India receives half the sum of what it has to pay for importing, one-fourth the quantity of tobacco it annually exports. In other words, 8 lbs of Indian tobacco are equivalent to 1 lb of imported variety in value. This is due to the fact that indigenous varieties cultivated give a somewhat coarse leaf of poor quality. If a tobacco of the colour, flavour, and texture of what is known as Virginian can be grown and cured in India, there is every possibility of building up an export trade with Great Britain and of meeting, at the same time, the local demand for a tobacco of this quality. Some of the American tobaccos now under trial have given promising results. Crosses between them and indigenous varieties are under trial at Pusa.

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In Bengal much work has been done at Buriphat Farm on the production of a suitable exotic tobacco leaf, for the production of cheroots, which are now being manufactured and sold in the open market. Local tobaccos have also received attention and selected seeds of these are doing well all over the province. Applications for seed should be made to the Agricultural Chemist to the Government of Bengal, Ramna.

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### Potatoes

While there are as yet no departmental races of potatoes, the Department has shown that potato cultivation, properly carried out, especially under irrigation, is a paying crop. Intending purchasers of seed potatoes should apply to the Deputy Directors of Agriculture, Dacca, Rajshahi or Calcutta.

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### Cotton

A revenue crop in cotton has already been obtained in Bengal. Seeds are available for multiplication. A great measure of success has been achieved in this direction throughout India and the area cultivated with improved strains a few years ago represented nearly 12 per cent. of the total area under cotton.

In this connection the activities of the Indian Central Cotton Committee, which has its own Technological Laboratory in Bombay, and of other similar institutions, may be briefly mentioned here. The Indian Central Cotton Committee, constituted in 1921, is an Advisory

Committee in regard to the policy—both agricultural and commercial—to be followed in promoting the development of cotton growing in the different provinces. It is a bureau of information for the agricultural departments, the trade and the general public. Agricultural and Technological research on cotton is its special care. It is financed by a cess of two annas per bale on all cottons used in mills in British India and exported from India. The only other products on which a similar cess is levied are tea and lac. A cess of six annas is levied on every hundred pounds of tea exported and the proceeds of this, which now amount to over Rs 12 lakhs per annum, are made over to the Indian Tea Cess Committee to be utilised in promoting the interests of the Indian Tea Industry. The money is spent mainly on advertisement and propaganda. A cess of four annas a maund on exports of lac and of two annas a maund on exports of lac refuse is also levied. The proceeds of this cess are administered by the Indian Lac Association for Research, which was constituted in 1921. The Institute of Plant Industry at Indore, a similar institution constituted in 1924, is practically a central research institute for cotton problems arising in Central India and Rajputana. The Indian Central Cotton Committee does not confine itself to research on cotton, but is concerned with all questions arising out of cotton-growing, from the field to the factory, with the result that improved varieties of cotton are being introduced, which have largely increased the yield and the quality of the crop and consequently the wealth of the country. Similar

are the results achieved by the other Institutions working in regard to jute, tea, lac, wheat, groundnut, sugar, etc. The most prominent of these Institutions are the Agricultural Research Institute at Pusa, which deals with agricultural, botanical, chemical, mycological, entomological and bacteriological problems relating to crops, and (2) the Agricultural Research Institute, Coimbatore, where there are breeding stations for sugarcane, paddy, cotton and millets, with special laboratories and culture houses.

### **Wheat**

The Agricultural Research Institute at Pusa pays special attention to wheat improvement. One of the most successful pieces of work on this subject has been the isolation of higher yielding and rust-resisting varieties of good milling and baking qualities. The area of improved wheats now under cultivation is about 2 million acres, Pusa wheats alone being grown on an area of about one and a half million acres. There is still much work to be done to increase the yield of these varieties to prevent underselling by foreign wheats.

### **Pulses and Oilseeds**

These crops are also under investigation from which results of considerable importance are expected to accrue.

### **Cattle**

In Indian agriculture cattle ought to play a larger part than they do in most countries, the ox being the

draught animal used on the farm, and milk forming one of the most prized foods consumed by the people. So far as Bengal is concerned, the programme of improving the cattle is under investigation at the Cattle Farm, Rangpur, and at the Cattle Breeding Section, Dacca Farm. The main object at both places is to produce a suitable dual purpose animal (milk and draught), the condition of Bengal cattle being abnormally poor.

Great advance has been made at Rangpur with pure and cross bred Harriana cattle. The mating of local cattle has been stopped. After 14 years' breeding work, it was found that the local animals increased only 8 % in body weight and could not maintain a lactation of 2000 lbs.

Many of the bulls bred were poorer than those found in villages. The stock were fed and kept under good conditions. The above clearly shows that by breeding from local cattle alone, no advance can be made in improving the cattle of the province, even where the stock are well fed.

Breeding is now confined to pure breed Harrianas, and to crossing of cross bred Harriana-Bengal with pure bred Harriana bulls. The results of this breeding have been very encouraging.

Stock of good stature, milk and draught capacity are being produced. Many cows now yield over 3000 lbs in a lactation period. On some Government farms outside Bengal, improved cows are now giving up to 7,000 lbs and cross-bred cows up to 12,000 in a lactation period.

It has been established by cattle-breeding investigations that the milking strain passes through the male parent. Bulls from these milk recorded dams are now available for issue. Such bulls are placed at all Government Farms. During 1931-32 they covered over 2000 cows.

At Dacca herds of pure bred Scindhi and Murrah (Delhi) buffaloes are maintained. Bulls of both breeds are available for disposal. The Scindhi herd has been acclimatised. They can stand the climate of Eastern Bengal. Some of them have lactations of over 4000 lbs of milk in 300 days. The Murrah buffaloes have stood the climate very well, and neither the adult nor the young stock show any signs of deterioration. In fact, the buffaloes have stood the climate better than any breed tried, mortality amongst young stock being very low.

Most cows have yielded over 24 lbs of milk a day ; at present one is giving 28 lbs of 8 per cent. B. F. milk daily ; one cow gave over 5600 lbs of milk in 300 days. Bulls and heifers are available for sale, the milk of the buffaloes being very rich in butter-fat. They are suitable for *ghee* production and can be considered the most economical dairy animals in India.

All stock are protected against rinderpest and bulls are tested for service before issue.

Feeding experiments at both Farms show that minerals must be added to the feed of cattle in all parts of Bengal. To encourage the keeping of good stud bulls, Government sanction premiums to the owners of good bulls. Further and full details can be had from

the Live Stock Expert to the Government of Bengal, Ramna, Dacca.

### Fodder Crops

For kharif (summer crop) juar, maize and millet can be recommended ; when these are properly cultivated heavy yields of good fodder are obtained. Seeds of early and late varieties are available.

For Rabi (winter crop) oats, peas and kalai can be recommended. Seeds of good varieties are available.

The most important fodder in Bengal is the permanent fodders. Napier grass and guinea grass are recommended (see Departmental leaflet No. 10 of 1931). These grasses grow well on any high land in the province, both grasses are now becoming very popular with cattle owners.

For a catch crop, both kharif and Rabi, several varieties of cow peas and kalais can be recommended.

Further particulars on the above may be obtained from the Live Stock Expert to the Government of Bengal, Dacca, and Economic Botanist, Bengal.

Silage can be made in every district in Bengal. Good silage can be made from any green fodder crop. The best crops for silage making are juar, maize, millet, Napier grass, guinea grass and water grass. In addition to the above good edible silage has been made from mixtures of Juar and Paddy straw,

„ and Water Hyacinth,

„ and Banana Plant.

Further details are obtainable from the Live Stock Expert to the Government of Bengal, Ramna, Dacca.



### Manures

Various kinds of natural and artificial manures have been tested on Government farms and a small demand for them created by demonstrating their use in villages. The demand for fertilisers is on the increase. Investigations at Dacca show that the return from the red soils of the generally infertile Madhupur jungle tract in Eastern Bengal can be profitably increased by judicious manuring. Persons desiring advice of any kind regarding manures should apply to the Agricultural Chemist to the Government of Bengal, Central Farm, Ramna.

### Horse-Breeding

Horse-breeding, which was an important village industry in India years ago, has been allowed to fall into neglect through various causes, with the result that there is a grave shortage of horses in India and that the country is very largely dependent on other countries across the sea for her horse supply. This is not consistent with the dignity and status of this great country. Traces of the industry are still extant in the number of Indian horses sold at the annual fairs, such as Sonapore (Hari Har Chhatra) fair in Bihar. Till lately riding used to be a favourite and healthy pastime with the village people, the gentry and the nobility, and the people felt proud of their horses. There was thus an impetus to horse-breeding as an item of common agricultural practice, and it may be encouraged again by propagating the idea in a handbook through schools and

colleges all over the country, and by getting the Indian States and the landed aristocracy interested in the subject in view of the economic value of horse-breeding and of the health welfare promoted by riding exercises.

In recent years the extension of railway and of motor transport, the common use of bicycles as a convenient mode of conveyance in towns and in the mofussil, and a lack of interest amongst the aristocracy in possessing horses both for riding and draught purposes as well as for ceremonial processions, have largely contributed to the decline of horse-breeding in the country. The National Horse-Breeding and Show Society of India is paying much attention to the revival of the industry in view of the large sums of money (over 70 lakhs) which are sent out of the country annually to purchase foreign horses to meet the requirements of the army and other purposes, including racing, hunting, pigsticking and polo.

In view of the fact that India contains the Empire's land frontier, where it is necessary to employ army remounts, baggage ponies and transport mules to a large extent, it would benefit the country immensely if she produced within her boundaries all the horses required. Moreover, it would be particularly advantageous for India to be able to assist in supplying the world demand for horses and polo ponies, and so bring money into the country instead of sending it out. Everyone, therefore, who has the interest of the country at heart, is earnestly expected to co-operate with the Horse-Breeding Society and to assist it in carrying out

its object both economically and from the point of view of defence.

There is another factor which may be noted here. In no country can horse-breeding progress unless it can produce its own stallions. This point will have to be attended to and, in order to attain the efficiency desired, India must be able to test her potential stallions. For this purpose the race course is the only known modern test. Suffice it to say that it is useless to breed without this test. At present there is not sufficient opportunity for testing the potential stallions of the country owing to the comparative lack of racing for Indian horses and of stakes (breeders' rewards) for the produce of the country. It may be mentioned here that 45 lakhs are given in stakes every year and that of this large sum less than 2 lakhs are given to Indian horses. Besides, there is only one racing class for Indian horses in India as against four classes for imported English and Australian horses and three classes for Arabs. Consequently there is not adequate encouragement here for horse-breeding and the importation of horses is a further discouragement at the expense of Indian breeders.

The facts being briefly as above, it remains for the people, from the aristocracy to the peasantry, to revive their interest in horses and to bring private enterprise to bear on developing an important home industry, thereby adding to the agricultural wealth of the country and rendering India self-contained in horses which are necessary both for civil and military requirements.

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### Sericulture

The work of the Sericultural Branch of the Agricultural Department embraces the production of disease-free seed cocoons by a method of selection at Government nurseries, and through the agency of selected rearers under departmental control ; also the evolving of improved races of worms, investigation of different types of mulberry and manurial requirements of mulberry, and the training of rearers in modern methods of sericulture.

The superiority of departmental seed has been established and this seed fetches on an average about double the price of village seeds and four times the price of ordinary commercial cocoons. Since 1923-24 the average annual outturn of selected seeds issued from the Government nurseries has been 20,000 seers with receipts amounting to Rs. 70,000. A further quantity of 15,000 seers of seeds is also raised annually by supply of necessary parent stock for multiplication by selected seed rearers working under departmental supervision. The total quantity of selected seed is now about one-third of the aggregate seed supply in Bengal. As it is impossible to produce sufficient stocks of seeds on Government Farms, the Department has to arrange with recognised growers to multiply pure seed for sale. It is, therefore, essential that intending purchasers should order seed a season in advance so as to ensure delivery. It is the policy of the Department to gradually increase the number of selected rearers until the whole seed supply is controlled. The Department has also undertaken extensive propaganda in villages to train the rearers in improved rearing

methods and in organising co-operative societies for financing and marketing of their produce. Applications for selected seed should be made to the Deputy Director of Sericulture, Bengal, Berhampore, Murshidabad.

### **Ericulture**

“Eri” silk production with its manufacture is a branch of the silk industry which at present is confined to Assam, although all the necessary conditions for carrying on “eri” culture successfully with regard to climate, food plants, labour, etc., exist in almost all the other provinces of India.

The “Eri” silk-worm, which can be domesticated, feeds on the leaves of castor plants, cultivated all over India for the production of oil-seeds. “Eri” rearing and spinning cannot wound the sentiments of persons whose creed is “Ahimsa”; for there is no killing of life as in mulberry and tasar silk yarn production. The “Eri” cocoons cannot be reeled and have to be spun like cotton. The worms are, therefore, allowed to break open the cocoons and fly away as moths. The rearing of “eri”, the spinning of its cocoons on “charkha”, the dyeing of the spun thread, and its weaving into fabrics, are operations admirably suited to the genius of our people in handicrafts and can keep employed thousands of our rural population in a lucrative part-time occupation.

In Bihar and Orissa alone nearly 50,000 acres of land are under castor cultivation and the average yield of seed per acre is estimated at 7 to 8 maunds costing about Rs. 20 to Rs. 25. The castor growers have yet to

learn that their more valuable crop is the foliage of the plant, which is now being wasted. If the same is utilized in feeding the "Eri" silk-worms, as it ought to be, about half a maund of cocoons worth Rs. 50 at the present market rates can be produced per acre of castor plantation. By educating the agriculturists in the correct methods of rearing, and with an organization for the supply of seed eggs and for marketing the cocoons, it may be possible to increase their income by Rs. 25 lakhs per annum. By the conversion of this valuable raw material into yarn and cloth, another 50 lakhs of rupees can be earned (the "eri" scarves, bedspreads, etc., of the Silk Institute, Bhagalpore, fetch as much as 10 rupees per lb. of cloth).

Experiments were conducted at the Angul farm in 1930 by the Assistant Director of Agriculture of that division to ascertain to what extent the seed-bearing capacity of the plants suffered when they were stripped of their foliage. Although these experiments were conducted only for a year and hence were not conclusive, the yield of seeds was reported to have diminished by only 25 per cent. It is, therefore, certainly worth while sacrificing about Rs. 5 worth of seeds for an additional income of about Rs. 50, the value of half a maund of "eri" cocoons that can be produced from an acre of castor plantation.

Encouraged by the successful results of the experiments carried on at Bhagalpore, both in respect of rearing and the conversion of the cocoon into finished fabrics, the Department of Industries, Bihar and Orissa, started

demonstrating "eri" culture in the villages and a few locally-trained rearers were stationed in some of the districts to teach the rational methods of silk-worm rearing. The Silk Institute at Bhagalpore supplied to prospective rearers disease-free seed eggs, free of cost, and offered to buy from them cocoons and spun thread at market rates. Many people have now started "eri" rearing, particularly in Orissa, and this useful industry is now being taught in about 400 primary schools in the districts of Cuttack and Balasore as a subject for nature study and manual training. Credit for this useful work is also due to Rai Sahib Bhikary Charan Patnaik of Cuttack, who, through his vernacular paper "Utkal Dipika" and by lectures, exhorts the people of Orissa to adopt "eri" rearing and spinning as a leisure hour occupation.

There is at present practically no market for "eri" cloth except for chaddars and the demand for these soft and beautiful fabrics has to be created before this industry can be established successfully either in Bihar and Orissa or elsewhere. The Bhagalpore Silk Institute, having realized its responsibility in the matter, started designing new patterns in "eri" silk fabrics and found new uses for the same both in India and the European countries. Some charming designs in scarves, bedspreads, and dress pieces are being manufactured and the unique qualities of these home-spun and hand-woven fabrics, as compared with those of the ordinary mulberry and tasar silks, are being advertised.

"Eri" silk fibre is much finer than that of "Tasar" or

“muga” and has better elasticity. Being white in colour it can be dyed in light shades. Again the absence of bright lustre, so characteristic of other silks, its durability and its quality of absorbing moisture like cotton, make this silk admirably suited for men’s dress and under-clothing.

With a view to testing the commercial value of cocoons in the European markets and their suitability for the production of spun silk yarn, three consignments of cocoons, weighing about 1,000 lbs. each, were despatched to spinners in England, including one through the Director of Imperial Research Institute, London. But the reports received were not encouraging.

One spinner stated that “eri” yarn is not as strong as mulberry spun silk and that “eri” cocoons can fetch on the English markets a price not more than 2s. per lb. It is, however, not necessary that India should export this valuable raw material; our partially employed agricultural labour can profitably convert the same into fabrics of unique qualities for the markets of the world and retain a monopoly in the production of this class of silk goods.

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### **Dairying, Poultry Farming, Lac Cultivation, Bee-keeping and Gardening**

Analogous to Sericulture and Ericulture there are other agricultural lines, such as those mentioned above, which provide lucrative part-time occupation for the Indian cultivator, who generally remains idle for nearly half the year when there is no demand upon his labour



either for raising his crops or for any work connected therewith. There is a heavy economic waste during this slack season and odd hours of unemployment unless the gap is bridged by some kind of recreation which is paying as well. For centuries past either *charka*-weaving, or some side line of agricultural work, used to occupy an important place in the economy of Indian village life, combining recreation with remuneration, and by all means these side lines must be kept alive to supplement the lean income of the *ryot* who is reported to be generally living from hand to mouth, or involved in debts. Agricultural indebtedness is a large problem, perhaps equal to the war debt problem, and much as we may expect from a closer contact of co-operative credit societies with the Indian peasantry to provide a solution, it is hardly possible to exaggerate the importance of lucrative part-time employment for them. The village people are aware of the opportunities open to them, but poverty, broken health and worries arising from various other causes, have destroyed the alertness of the people and made them indifferent even to their own immediate interests. Consequently, there appears to be no other way than to carefully draw attention to the relief that will be forthcoming from their pursuing side lines in leisure hours, and to the educational value inherent in dairying, poultry farming, lac cultivation, bee-keeping and gardening under scientific methods. There is ample scope for private enterprise if wealthy people enter upon these lines scientifically in co-operation with villagers, and develop important cottage or organised industries in the

interests of all concerned. Moreover, the scientific habits, which such pursuits will promote in the peasantry, will have another advantage. Despite their illiteracy the peasantry are intelligent enough to be trained readily in ordinary scientific work and even in handling microscopes and this training will constitute a valuable asset in combating malaria and other scourges which are referred to under Rural Sanitation (pp. 99-105).

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V

RURAL EDUCATION

In the preceding chapter we have dealt with the work in progress for agricultural improvement as a condition precedent to rural uplift. There are other conditions, which equally contribute to economic success, and where private enterprise has equal scope for useful work. It must, however, be clearly understood at the outset how the whole programme is to be prepared and how it is to be proceeded with, economic development being influenced by several circumstances, some of which may be beyond political, or even human, control. We are aware that much depends on climatic conditions and that, if the peasant's prejudices, pre-conceived ideas and habits are not allowed to interfere with his work, a rise in the standard of his general information, average intelligence, health and credit, will materially better his economic position. Surroundings and even world movements have largely to do with the peasant's prosperity. With all these contingencies to deal with and

with no education to help him, the peasant has to fight hard against great odds. His lot may be improved to some extent—and this means a corresponding improvement in the economic condition of the country—if he is given the right type of education with a view to building his character, physique and mentality.

Unfortunately, there is some misunderstanding as to what constitutes the right kind of education, and until doubts are removed, the peasant will be labouring under a great disadvantage. It is often said that a good general education is a solvent for prejudices and conservatism, the best preparation for life and even the best foundation for specialised vocational training. But a note of warning may be sounded here. Until hereditary classes are abolished in India,—although it is not desirable to do so on economic and cultural grounds (pp. 59-60),—what may be considered as a good general education for the aristocracy, or the middle classes, is perhaps something else so far as the peasant and the artisan are concerned. A good general education in the latter's case apparently consists in fairly reading, writing, and calculating, and in a working knowledge of every thing that relates to their occupations, health and financial facilities. In short, the education in question is *agricultural education* for the peasant and *technical (industrial) education* for the artisan. It is, however, regrettable that much of the education given in primary and secondary schools in rural areas is lamentably unsuitable both from the cultivator's and the artisan's points of view. It tends to alienate the sympathy of the pupil from the land, as

well as from his hereditary occupation and to unfit him either for farming or for industrial work of any kind as a vocation. It is divorced from practice, resulting in unemployable misfits. In all areas, rural or urban, education, whether in primary or secondary schools, must be adapted to the needs of the recipient, and not to the fantastic idea that all educated pupils will be provided for in government or private services. The number of such appointments is very limited and will be more restricted if the financial stringency continues. They are perhaps not even enough for one per cent. of the population. To explain the position from all points of view, the writer has issued two books, namely, (1) "Technical Education" and "Indian Education Problem—A Solution", there being a special chapter under (1) on "The Meaning of Education." These books may be explained to all pupils by primary school teachers and recommended for a careful study in Matriculation and college classes. It is no good to cry for the moon, or to lay blame at the door of bad luck. Let us do what is possible by self-help alone to develop our character, health, and mind, and our efforts will doubtless be crowned with success.

Briefly, if rural education is to be conceived in the spirit referred to above, it means :—

(1) Mass education in elementary reading, writing, and arithmetic ; the literature, correspondence and accounts being drawn only from rural scenes and life, and the unemployed educated classes, preferably *local* men and women, being employed as resident teachers, also an open-air life and direct lessons being resorted to as

freely as possible, with an eye to character and culture ;

(2) The resident teachers to promote not only general literacy, but to explain to the *ryot* on the spot the principles of scientific agriculture, arts, industry and health welfare ;

(3) The well-to-do agricultural people in villages to maintain these teachers by rotation according to traditional custom and hospitality, to provide economically suitable school accommodation and to meet all other charges by co-operative efforts supplemented by help from Union and District Boards and from Government, the "district fund" suggested elsewhere (p. 111) being utilised, if available ;

(4) The curriculum and hours of attendance to be as variable as necessary to meet requirements of occupations, classes, physical and public health, the basic elementary reading, writing and arithmetic being, however, uniform and compulsory for all boys and girls from the age of five ;

(5) In addition to resident teachers, (a) purely agricultural schools to train the sons and daughters of cultivators in scientific agriculture and (b) technical schools for artisans, to be established broadcast in rural areas, local thriving farms and workshops being used as centres for practical training ;

(6) Instructions on scientific agriculture and industry to be popularised for the adult cultivators and artisans, respectively, by magic lantern shows, *panchayat*

meetings, and by demonstrations in model farms or elsewhere on business lines ;

(7) Rural agricultural schools and model farms to provide opportunities for employment of the Indian youths trained in Agricultural Colleges, thereby affording facilities for these youths to return to village life and to ancestral occupations ;

(8) Private enterprise to be encouraged to start higher technical schools on the lines of the Calcutta School of Chemical Technology to provide higher education in applied chemistry, botany and biology within rural means ;

(9) Prize essays, recitations, debates, demonstrations, village magazines, travelling libraries, etc., to be organised to prevent lapses into illiteracy on withdrawal from rural schools ;

(10) Scouting to develop health, character, discipline and interest in education, and "Junior Red Cross" training to promote cleanliness, inter-communal friendliness, and the practice of social service from the first day of schooling.

(11) Technical education, or education with a "definite aim" from the outset, to be ordinarily based on family or hereditary occupation and on evidence by guardians that the education desired for their wards is not for securing a job, but for independent work ;

(12) Pupils without a definite industrial or professional bias to be advised to undergo pharmaceutical education, in order to pursue Pharmacy as an independ-

ent career, pharmacists being the most suitably educated and most readily available persons in all countries to assist in the development of scientific agriculture, industry, cheap medical relief, and public health welfare.

Finally, it may be added that the educated classes in urban areas, who perhaps do not constitute more than 10 per cent of the total population, have already found themselves in a serious state of unemployment, and that it will mean a menace to the peace of the whole country if we further drive more of the agricultural and the artisan classes from their peaceful rural life to the ranks of the unemployed in towns, as a result of a system of education divorced from practice and appreciation of the real situation. It, therefore, seems expedient for all efforts, both official and non-official, to combine, in order to maintain social equilibrium, *first* by keeping the rural people prosperous in their own occupations, and, *secondly*, by providing such education as will conduce to their health, wealth and happiness instead of leading them to unemployment and consequent misery.

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## VI

### \* Rural Sanitation

In western countries the countryside presents an ideal site for people to live in, it being free from smoke and noise, but having a plenty of fresh air,

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\*Originally published in the "A. B. Patrika" of Jan'y 15, 1933 and "Indian and Eastern Druggist," London, April 1933.

of homely charms and joys, and of such amenities of life as are barely essential for health and convenience. Out in India the countryside is no less charming and quiet than elsewhere. But the one thing, which makes the world of difference, is that the rural people here, who are extremely poor, are entirely ignorant of the fundamentals of health and hygiene. This is mostly due to lack of education. Eighty per cent or more of the Indian population and of the country in area are rural, the common feature being the hamlet and the village, with horribly insanitary surroundings, and it is a tremendous task to introduce a change until a sanitary conscience is roused in our people chiefly through education. Good communications, pure water supplies, and cleanliness, both personal and environmental, are the first essentials and unless there is an abundance of funds, or the people, despite poverty, educated enough to understand what is necessary, and to evince a spirit of social service for urgent reforms to be carried out by co-operative efforts, the task appears to be hopeless.

There is also more need of medical relief in villages than in towns which are comparatively healthier in several respects. Unfortunately, qualified medical practitioners generally congregate in urban areas, the rural areas depending mainly on indigenous medical relief provided either by "Ayurvedic" and "Unani" practitioners or by quackery. The western system of medical treatment, which was first brought to this country by



the ships' surgeons of the East India Company in the 17th century, was in a very crude state till the 18th century, and it is only within the last hundred years that most of the developments took place, rendering the system worthy of the name of Science. Fortunately for India, the period of British rule of the country coincides with the period of progress in western medical science and the advantages accruing from modern conception of sanitation and of "preventive medicine", are not only being extended to Indian towns, but also to remote villages.

The progress of medical science and of public health education in India is further due to the establishment of Government medical schools and colleges, of hospitals, Research Institutions, Pasteur and Vaccine Institutes, Public Health Laboratories and the all-India Institute of Hygiene, coupled with (a) wonderful advances in surgery, in asepsis, in anæsthetics and in a knowledge of the bacterial and protozoal origin of disease, (b) the growth of an independent medical profession and of locally trained medical subordinates who are invaluable in rural areas, and, lastly, (c) the creation of a Women's Medical Service. These improvements have brought about revolutionary changes in medical relief at towns with corresponding repercussions in rural areas. It is equally to the credit of Government, as also of Medical Missions and of private enterprise in opening hospitals, dispensaries and even institutions for higher medical education, that much progress has been achieved and

it is expected that more private enterprise and bands of voluntary workers will be forthcoming, as in all civilised countries, to extend medical relief as well as ideas of sanitation and public health. In no progressive country are the infantile mortality and maternal deaths so high and the average expectation of life so low as in India, and improvements are being introduced, particularly in the mofussil, through Child Welfare and Maternity Centres, largely due to voluntary effort, which speaks well of the rising generation and is one of the most hopeful omens for India's approaching prosperity.

There is a vast and wonderful field in India, which is open to the zeal of voluntary effort of all kinds. Unfortunately, this aspect of public work has been generally conspicuous by its absence in the country since it fell under the cover of its dark age on the passing away of the Buddhistic period, which lasted till up to the 12th century A. D., or even later when it was possible for such institutions as the "Nalanda University" to exist through public munificence. But the recent developments of various kinds of Seva Samitis and other kindred societies for social service are really hopeful. More and more effort is needed to stimulate in the country's youth the spirit of social service which was its special feature till lately, as just mentioned, and it will not be a hard task to revive it if the ideal is regularly held before our pupils right from the school to the college through a systematic course such as the School of Chemical Technology,

Calcutta, has long been insisting upon. Every encouragement, therefore, should be extended to such activities as are being shown in Bengal by Co-operative Anti-Malaria and Anti-Kala-azar Societies which obtained commendation even from the Royal Malaria Commission, and there is the greatest amount of hope if developments proceed on these lines until the whole of India is provided with a voluntary army of workers to combat disease and insanitation.

The Co operative Anti-Malaria Society, Calcutta, which has been registered under the Co-operative Society's Act, aims at creating autonomous rural units in each village throughout the province. These units are being set up to control Malaria and other diseases like Kala-azar and to improve local areas by introducing environmental sanitation, drainage and pure water supplies. More than one thousand of such units have already been formed in Bengal. There are approximately 700,000 villages in India and if 700 societies like the Co-operative Anti-Malaria one come into existence, working with the spirit and energy of the Central Calcutta Society, the sanitation problem of rural India, which appears to be a formidable one, may be brought within the range of practical politics. More these ideas are disseminated in a handbook through schools all over the country, the greater is the chance of success to bring India into line with other civilised countries where the practice of social service plays an important part in their civic and economic life.

Further, the experience gained by work on malaria control in India is of particular scientific interest. The extent of annual death roll from malaria alone amounts to a million or more in certain years in this country, and difficulties arise in determining the species of mosquitoes which are carriers of malaria, there being considerable dissimilarity in their habits and behaviour amongst the species and carriers according to localities as there is among the different races and sub-classes of mankind. It is erroneously believed that the bite of all female Anopheline mosquitoes causes malaria. It has also been found that the females of all Anopheline species have not the same capacity of transmitting disease, and that the carrier species differ under varying circumstances. These are the experiences at a particularly malaria-stricken village known as *Birnagar*, in the district of Nadia in Bengal. Similar experiences are accumulating at other centres as well. Laborious field work and patient research are called for in all cases.

The malaria control and other kinds of village welfare work at *Birnagar* are more voluntary than paid so far as the organisers are concerned, who have raised funds chiefly by self-help from among themselves, and who have made a name in the scientific world, not so much for the results so far achieved, as for their valuable collections of records of work and the effective means of control adopted by them. The example set is encouraging and deserves to be generally adopted throughout India.

As outlined in the speeches of H. E. the Governor, and the Hon'ble Sir B. P. Singh Roy, Minister of Local Self-Government, Bengal, an extended campaign against malaria, on similar but more elaborate lines under Government control, has been recently undertaken in the Burdwan district and the result will doubtless be watched with unabated interest. This experiment is really of the nature of research work, having its high scientific value, and its merit will, it is hoped, be considered in due course.

The control measures are : *first*, anti-larvæ by the use of such larvicides as (1) crude oil called *Pesterine* and (2) *Paris green* mixed with a diluent brick dust and blown from a rotary blower and, *secondly*, anti-gameteocyte by regular administration of quinine, cinchona and plasmoguinine to attack parasites in the human host.

Finally, it may be noted that the establishment, at Calcutta, through the munificence of world-famous Rockefeller, of the All-India Institute of Hygiene and Public Health, which was opened in December last by H. E. the Governor of Bengal, will have far-reaching results in improving the sanitation of India, both rural and urban, and the country will soon cease to be marked as a plague spot, in international eyes, through the combined efforts of the Institute, the Tropical School of Medicine, and the provincial Directors of Public Health, whose plan of work will, it is hoped, be more of preventive than of hospital treatment kind, the present experience being that more lasting benefit to the community is effected by preventive measures than otherwise.

There is another agency which is rendering highly-useful service to humanity. The insectivorous birds, reptiles and fishes do the best *voluntary* scavenging and anti-malarial work, and it is our duty to be kind to them by refraining from indiscriminate shooting and other carelessly destructive methods. In advanced countries with comparatively small areas to deal with, the humble work of these insignificant creatures may be ignored, but in India, with extensive stretches of rural tracts, it is rather advisable not to interfere with the preventive work which Nature provides. On the other hand, prevention may be popularised by combining natural methods with what science has to suggest, and by employing voluntary labour as far as possible, this being the only rational and economical way of tackling a huge problem.

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## VII

### IRRIGATION

Indian agriculture depends more or less on the rainfall and there is a failure of crops, with consequent famine and distress, whenever the rainfall is deficient. Some parts of the country habitually suffer from deficient rainfall, and agriculture there is supported by irrigation works, which are generally very costly and are consequently undertaken by Government. In some places water during the dry season is supplied by simple contrivances, and, from time immemorial, the use of

lifts and the expediency of storing water in the monsoon for use during the subsequent dry weather, have been practised in India. This is not, however, the case everywhere owing to ignorance and conservatism. Consequently education and encouragement of private enterprise are necessary to tide over the scarcity of water. In many cases channels, which are used for irrigation and navigation purposes, get blocked by the growth of water hyacinths, deposition of silt and other causes, and private enterprise is to be resorted to for removing the blockade. Lethargy and lack of co-operation often stand in the way and these will have to be got rid of by a regular cultivation of the spirit of social service which has made the formation of co-operative Anti-Malaria society possible as noticed elsewhere. The scope of private enterprise in the matter of irrigation is, however, limited and, although in rural areas co-operation may achieve a great deal, large irrigation works and projects are entirely Governmental and millions of acres of uncultivated land are being brought under cultivation and uninhabited tracts made habitable in the Punjab, Sind and other parts of India. The vast extent of the growth of irrigation may be visualised only by reference to figures which are colossal. The total area under cultivation in India may exceed 260 million acres by this time. Of this the area irrigated by Government irrigation works may be over 50 million acres, involving a capital outlay of nearly ten thousand lakhs or more, and yielding crops to the value of nearly twenty thousand lakhs. These figures give a rough idea of the beneficent

work of Government and of the immensity of the task undertaken. We shall be useful citizens if we try to emulate these examples in our own way, however humble our efforts may be. It will also have to be remembered that the prosperity expected from the growth of agriculture, irrigation, railways, the steam-ship and other means of communication, is dependent on the world's demand for India's produce at a price profitable to the cultivator and, while we are busy thinking of improving agriculture, we must set our eyes upon world conditions and upon the development of trade and industry. Otherwise there is the risk of India inevitably reverting to her old rural condition through unrest and chaos.

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## VIII

### \* RURAL INDUSTRY

Agriculture is the basic rural industry of India, the country being chiefly agricultural and a producer of raw goods. It was once the country's prosperous rural industry, which used to cover almost all the needs of the people, but, unfortunately, it has failed to keep pace with the time and has met with a set-back. To meet present needs an industrial regeneration is called for and a start will have to be made with the agricultural people, who constitute the backbone and the very foundation of the Indian structure. One drawback,

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\*Originally published in "Industry," Calcutta, May, 1933, issue.



however, is that the people are generally lacking in enterprise, their mentality inclining them to be content with poverty. There may be a higher spiritual ideal underlying this mentality. But if they have to live, they must be industrious, for it is a common truism that "man must live by the sweat of his brow." It is also necessary to employ up-to-date methods and organisations, and to be honest in all dealings for the full outturn of labour in cash and in kind to be available. Agriculture apart, industrial development ordinarily refers to manufacturing industry, which predominates in an industrial country. As yet there is not much manufacturing industry in India. Nevertheless, industry is slowly progressing in the land and doubtless it has come to stay despite several drawbacks. In this connection the question of housing labourers at all industrial centres, on construction work, etc., is very important, the housing arrangement being generally a standing shame in this country, and must be sympathetically considered to admit of industrial progress on a decent and moral basis.

Local industries in India are mainly associated with the vegetable, the animal, and the mineral wealth of the country and the more noteworthy among them are:—the tea industry in Assam; jute, coal and rice industries in Bengal; mica, iron, coal and steel in Bihar; leather, woollens, cotton, flour, iron foundries and bristle factories in the United Provinces; weaving, horse-breeding, wheat, tea and fruit in the Punjab;

cotton, biscuit, flour and art industries at Delhi ; manganese in the Central Provinces ; gold in Mysore ; cotton in Bombay ; soap, sugar, copra, coir and oilseeds in Madras ; petroleum, precious stones, teak wood, tin, zinc, lead and silver, as well as rice in Burma. Besides, there are some growing industries, for instance, chemicals, paper, sugar, leather, etc., in Bengal and elsewhere.

Against what progress is being made in industry, there is a serious menace of increasing population in rapid strides, as disclosed in census returns. On the other hand, there are humanitarian efforts to reduce mortality by promoting sanitation, medical aid, and hygienic life. The inevitable result is that the country is perhaps being veritably brought to an impossible position. Sooner or later, a situation may arise when people will freely fight among themselves for bread unless industries are systematically and steadily developed, in pursuance of a consistent and comprehensive policy, to cope with the situation, and the surplus population taught to migrate to other soils waiting to be populated.

The population problem is a serious one and should engage the attention of educationalists, industrialists, and statesmen. There is already widespread unemployment which is increasing with the growth of education, literacy being unfortunately dissociated in India from practical work, and manual labour, of *commercial* value. Urgent measures are, therefore, needed to keep the situation under control. The ordinary suggestion is :— "go back to the country". But there is already a heavy strain on the

land and this seems to be true from the prevailing poverty of the peasantry, the yield from land having generally failed to sustain them. There may be some causes, such as agricultural indebtedness, conservatism, ignorance, etc., which are preventible. But after all, the need for promoting industry, both agricultural and manufacturing, for reforming education, and for finding employment for the unemployed, is unassailable.

The position being briefly as above, an immediate solution appears to lie in the co-operation of the rich with the poor in mutual interest; in the establishment of a district fund, and an industrial association with an efficient Intelligence Branch, in each district; in encouraging a high standard of character through the practice of social service and self-restraint; in introducing better discipline, better health, and better methods of education; in insisting on more honest and expert work instead of creating confusion on the pretext of democracy; and, lastly, in the promotion of cottage industries with provision of suitable marketing and credit facilities, such industries being consistent with the traditions and character of the country, and not giving rise to the evils which modern labour centres are subject to. The rural schools may be reorganised to combine education with rural vocations, preferably on hereditary lines, and to widen outlook on the basis of concrete facts, information on the economic position of the country and on available business openings being regularly placed before the pupils everywhere from as early a stage as possible.

As a further measure of relief, the unemployed educated youth, and even youngsters, may be employed early as selling agents, also as shop, factory, or farm assistants, and encouraged to take to the manufacture of commodities in common use in a province, district or village, namely, buckets, tools, lamps, button, brass wares, bell metal and aluminium wares, washing soaps, umbrellas, hurricane lanterns, corrugated iron sheets, toys, trunks, leather bags, suit cases, etc., it being always borne in mind that they will have to face powerful foreign competition, both in respect of raw and manufactured products, and that the whole scheme will be a failure unless these products are sold at competitive prices (pp. 67, 73, 81, and 108), as also by attractive and co-operative methods. It is further to be remembered that the time factor is very important in this connection. The sooner a definite career is decided upon,—all guardians and their wards are being earnestly asked to be particularly alert on this essential point—and a determination made to pursue education concurrently either in continuation schools or otherwise, the better for the solution of unemployment and unrest in the country. The Industry Department, Bengal, has already made a move in the matter, having organised industrial parties and issued scores of pamphlets of valuable information including one on opportunities for careers open to young men in industrial lines. Similar action has also been taken by the Bengal Chamber of Commerce and the National Chamber of Commerce, the creation of an Economic Council for the province having been sug-

gested by them. The School of Chemical Technology, Calcutta, has been urging the need for cottage industries and technical education since 1919 when there was apparently no one in the field to draw attention to the subject, and has already published three volumes, namely, (1) "New Chemical Industries", (2) "Technical Education" and (3) "Indian Education Problem-A Solution", to give a more practical turn to the present system of education and to solve the urgent bread problem. This pamphlet is the fourth in the series and, in view of the large and pressing interests involved, it is hoped that the ideas set forth in the volumes will receive careful attention and will be allowed to be impressed upon the youth of the country through schools and colleges, their co-operation being enlisted till the present economic condition of the masses is improved and rural development assured. There are agricultural, industrial, public health and educational authorities and it is for them kindly to take necessary action in order to give effect to the suggestions in right earnest.

The suggestions are very briefly summarised in pages 47-49. But, so far as rural education is concerned, twelve main principles are suggested in pages 96-99. The essence of all these suggestions is, however, repeated more than once in pages 52, 62, 66, 67, 94, 100, 102, 103, 108 and 111 and may be easily remembered if there is the will to carry it out.

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Pulp Industries  
3

# THE DESERTED VILLAGE

No. 2.

Compliments of  
**THE CHEMICAL FOUNDATION**  
654 MADISON AVENUE  
NEW YORK, N. Y.

*“But only God can make a tree”*

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G4

To

THE HONORABLE PRESIDENT OF THE UNITED STATES,  
THE HONORABLE CORDELL HULL, SECRETARY OF STATE,  
MEMBERS OF THE UNITED STATES SENATE,  
MEMBERS OF THE HOUSE OF REPRESENTATIVES,  
THE N. R. A.,  
THE R. F. C.,  
THE P. W. A.,  
THE C. C. C.,  
THE C. W. A.,  
THE A. A. A.,  
THE IDLE MONEY IN IDLE BANKS,  
ALL FRIENDS OF THE SOUTH,  
ALL BELIEVERS OF AMERICA SELF-CONTAINED,  
ALL NEWSPAPER PUBLISHERS OF AMERICA,  
ALL PAPER TRADE ASSOCIATIONS:

During the last four years the imports of wood paper and paper base stocks into the United States have amounted to an average of over \$170,000,000 a year.

This amount goes abroad and is lost to our national economy each year, and what we get for it is used and goes down the sewer.

This amount is, roughly, 70% of our yearly consumption.

This \$170,000,000 a year, if spent here, would revolve and again be spent ten times, so \$1,700,000,000 worth of business each year is lost to the economy of our country.

This \$170,000,000 God offers you in the form of the sunshine of the South and its climate, to be utilized for the benefit of your people. This production belongs naturally to the South—belongs to the waste lands of the South—belongs to the lands now being bought up and taken out of cotton production.

Our problem of unemployment is entitled to the relief which this production can give. It is a permanent part of any proper recovery program. The Citizens Conservation Corps is cleaning up the forests of the South and in so doing has planted billions of these pines this year, which in seven years will add to your ready-at-hand enormous supply. What are we going to do with these lands? What are we going to do with these pine forests?

Dr. Herty's research is an accomplished fact. He has demonstrated that the sunshine and soil of our Southern states, on its poorest land, can

produce this \$170,000,000 a year as a by-product of the cotton crop, at two-thirds the present day cost to our newspaper owners and publishers.

Now comes the meeting of the Technical Section of the Canadian Pulp & Paper Association, held in Montreal, Canada, on January 24th and 25th, 1934, where papers were presented upon this threat to the market of other nations in American consumed newsprint. Those experts, though naturally hostile to our Southern development, were compelled to admit the truth and conservatism of every one of Dr. Herty's statements. The statement of A. A. MacDiarmid, Chief Engineer of Price Brothers & Co., Ltd., one of the largest concerns in Canada, is printed herewith in its entirety.

Now, someone is going to utilize this developed knowledge, either

1. The present United States wood paper industry, now producing 30% of our consumption and in bad shape due to foreign competition of the 70% imported. They are the logical people to go on with this development. By doing so they can recoup their losses, pay their debts and become prosperous. If they do not do so, whoever else does it will wipe them out entirely.

2. The Canadian or English or any other foreign capital can develop this industry in our

southland and make 100% of American consumption, to the destruction of our present 30% industry, and all the profits derived therefrom can be taken out of the country.

3. The industry can be carried on in any other semi-tropical climate. New Zealand, Australia, the African Provinces of France and the warm country dependencies of England are already studying Dr. Herty's research with a view to starting this industry to the benefit of their own lands.

4. Some one of our new Government agencies, either the Tennessee Valley Authority, the C. C. C., the P. W. A., or some other agency can begin the development at once.

Neither The Chemical Foundation nor Francis P. Garvan nor Charles H. Herty, nor anyone else, has one dollar's worth of personal interest nor will have one dollar's worth of interest, in any of this development. There are no patents or strings of any kind. Our research is open to everyone. It was undertaken and will be completed entirely for the benefit of our whole people.

Experiments now in progress in Savannah give promise of further striking reduction in the cost of converting pine wood into news print, probably to the extent of another \$4.00 per ton.

We are also now carrying on research on the use of pine in the manufacture of book, magazine,

absorbent, bond, glazed, rotogravure and coated papers, and the preparation of alpha cellulose which we hope will prove suitable as a base of our ever-developing rayon industry.

Yours very truly,

THE CHEMICAL FOUNDATION, INC.

Francis B. Garway

President.



Paper given at the Annual Meeting of the Canadian Pulp and Paper Association, January 24-25th, 1934.

## Southern Pine Newsprint Competition

A. A. MacDIARMID

Chief Engineer, Price Brothers & Company, Limited

The greater portion of the newsprint paper used in the world to-day is manufactured from wood grown north of the fortieth parallel, North latitude. This includes the areas of Northern United States, Canada, the Scandinavian countries, most of Europe, the Union of Socialistic and Soviet Republics, and a portion of Japan.

Attempts have been made from time to time to find other suitable materials from which to make this important commodity, and experiments have been made with straw, corn-stalks, sugar cane, tropical and semi-tropical woods and other plant growths, but none of these has yet proved a commercial success.

However, the research work that has been carried on by the State of Georgia over the past two years, in the Savannah laboratory, on the pines of the Southern United States, appears to indicate that the undisputed position which Northern woods has held in the newsprint field may soon be seriously challenged.

It has been my privilege to study and investigate, from time to time, timber, pulp, paper and manufacturing conditions in the Southern States, and last winter I spent considerable time there reviewing the experimental work in Savannah and investigating the possibilities of manufacturing newsprint from Southern pine. As there has been considerable publicity given to this work, and as the whole matter is of very particular interest to us in the Canadian pulp and paper industry, I will endeavour to present to you the facts of the situation as I have seen and know them.

This research work was organized and established through the efforts of a well-known and capable Consulting Chemist, Dr. Charles H. Herty, a past President of the American Chemical Society, past Editor of the Journal of Industrial and Engineering Chemistry, author of various papers on "The Naval Stores Industry," "Future Possibilities in the Production of Cellulose," and many other industrial chemical subjects, and who is in charge of the Savannah laboratory.

Although the practical result of this work is going to mean more competition for our Canadian industry, nevertheless industry is essentially progressive, research will go on, and highest congratulations are due Dr. Herty and his staff for the wonderful progress already accomplished.

Mr. Anderson, Chairman of our Committee on

Newsprint, has very ably told us about the trial run of paper made from Southern pine pulp last November at the mill of the Beaver Fibre Company, Thorold, Ontario. This paper neither compared in quality with that made in Northern mills nor would it likely be acceptable to any large metropolitan daily, but several publishers in Georgia seemed to have no difficulty in using it to run off a regular edition; the printed sheets looked tolerably good, and with continued study and development it seems very probable that newsprint from Southern pine will be of a competitive quality to that from Northern woods.

Now the natural questions anyone will ask are "what about wood supply" and "how will the cost of this Southern paper delivered in large consuming centres compare with that from the average Canadian mills delivered in the same places." My answers to these questions are as follows.

The important economic factors in the manufacture of newsprint paper under present day methods and the delivery of the finished product to the publishers are, of course:

1. Pulpwood.
2. Sulphur, limestone and other materials and supplies.
3. Power, fuel and steam.
4. Mill labour.
5. Probable mill locations and freight on paper.
6. Capital charges.

## Pulpwood

Up to the present the paper mills in the South have confined their activities almost entirely to the manufacture of kraft pulp and paper. The principal reason for this limitation seems to have been established from an idea that the various species of pines contained too much gum and resin to be manufactured into either sulphite or mechanical pulp and, further, that the fibre would not yield a uniformly white pulp without the expense of bleaching, and was consequently not economically suitable for a product such as newsprint. This idea was entirely sound on the assumption that no distinction was made between young and old trees, or between those containing only sapwood and those also having heartwood, this latter being comparatively dark coloured and commonly known to contain a high percentage of hard resin.

As heartwood does not commence to form in Southern pines until the trees are about 20 years old—some authorities say 25 to 30 years—and as that species known as slash pine grows very rapidly from seed, Dr. Herty conceived the idea of trying to make white pulps and papers from these young trees while in their so-called sapwood stage.

He commenced his work by studying the resin content of various pines and found that young slash pine, the most prolific producer of oleoresin

or gum for naval stores, contains as it stands in the woods about 1.38% of resin, whereas older trees with heartwood appear to contain from 10 to 33%. The average percentage of resin in freshly cut Canadian spruce appears from some authorities to range from .70 to 1.80.

Further work by Herty on this subject led him to try to determine where the resin in young trees came from and his studies have seemed to indicate that gum is formed only when the tree is injured, this being nature's device for healing a cut, and if the cut is chipped from week to week, more and more gum is formed, but that there is no more gum in a standing tree than there is clot in the blood stream of a healthy human being. Consequently, it would appear that this gum may be considered a pathological as opposed to a physiological substance.

There are several species of pine trees native to the Southern States, but the four most important ones are slash, long-leaf, loblolly and short-leaf. The principal regions over which these grow include the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and a portion of Texas.

The growing season in each year for trees in these areas is from nine to ten months, and owing to these favourable climatic conditions the four species of pine listed above rank among the most rapidly growing commercial trees in North America.

The United States Department of Agriculture reports in Circular No. 124, October 1930, that on average soils full stands of second growth long-leaf pine produce in 20 years 15 cords of pulpwood per acre, from trees 4 inches in diameter and up; short-leaf pine in the same time, 18 cords; loblolly pine, 28 cords; and slash pine, 36 cords.

It will be noted from these figures that slash pine reproduces more rapidly than any of the other species; the wood in young trees has also a surprisingly high specific gravity, consequently it is favoured as a timber supply for the white paper industry.

In addition to the growth figures quoted above, other Government records show growths per acre per year for slash pine varying from one cord on poor lands to  $2\frac{1}{4}$  cords on so-called good lands.

For a 500 ton newsprint mill, if the quantity of wood required is, say,  $1\frac{1}{2}$  cords per ton or a total of 180,000 cords a year, the area of timber land necessary to maintain a perpetual supply, if we assume the minimum growth of one cord per acre per year, would be about 300 square miles as compared to about 2,000 square miles in Canada.

No Government records are available that show the total board feet or cordage of Southern pine, but it is commonly known that there are enormous areas of this timber in the States mentioned above, and although much of the pine is undoubtedly old and contains heartwood, yet owing to the rapid growth there is a large potential supply of

sapwood pine and vast areas on which it may be grown.

Slash pine reseeds itself rapidly; reforestation by actual planting is also being carried on to a considerable extent, and information gathered from various reliable sources and from personal observation indicates that trees 10 to 15 years old, grown on average lands and in reasonably open stands, are sufficiently large to provide suitable and economical wood for paper making.

The Southern territory being a coastal plain, free from rocks, hills and mountains and with dense forest growth, provides easy and cheap woods operations. Logging and delivering to existing kraft mills is continuous throughout the year by rail, trucks and/or barges, and a week or ten days' supply of wood ahead of requirements is all that is necessary. Consequently, the working capital for entire pulpwood operations is much less than in the North.

Without discussing further details of this factor, it may be safely concluded that there is a plentiful supply of suitable pulpwood, and reliable information indicates that under present conditions the total cost of wood per ton of newsprint in a Southern mill would be \$3.00 to \$4.00 less than in the average of our lowest cost Canadian newsprint mills.

### **Sulphur, Limestone and Other Materials**

The sulphur requirements for Southern mills would ordinarily be filled from Texas and Louisiana fields, which are also the sources of supply for our Canadian industry. Consequently, the cost of this commodity to Southern plants should be less owing to the much shorter transportation distances.

Limestone is found in various Southern localities and the price to mills would be about the same as in Canada.

Other materials and all supplies would be about the same price as to the Canadian paper mills.

### **Power, Fuel and Steam**

There are no rivers in the coastal plain with any important hydro electric possibilities, nor are there any industrial centres from which a large quantity of electrical energy might be purchased, consequently the necessary motive power and steam for a Southern newsprint mill would probably be obtained from a steam turbine generating plant, and for economical reasons this plant would be directly connected to and form part of the paper mill buildings.

This method of developing the required motive energy would not, however, be a serious handicap. In fact power generated in modern high efficiency steam plants is to-day successfully competing in



different parts of the country with hydro electric energy, and with the prevailing price of oil and coal in the South, power can be generated from fuel at costs surprisingly low.

Calculations in this connection, with present fuel costs for plants in the Southern region, indicate that steam-generated power, exclusive of interest charges, would cost about \$1.00 per ton of paper more than in a typical Canadian mill using purchased power, whereas steam would cost about \$1.00 per ton of paper less. Consequently, the cost of power plus steam for a Southern mill would just about equal the cost of these products in an average Canadian plant.

### **Mill Labour**

The standard rates for common labour in the South are, of course, much below those in Canada. But as the principal labour in paper mills is more or less skilled, and as the rates for this class would probably not be much different whether it be in a Southern or Northern mill, it is felt the total labour cost per ton of paper in the South would only be slightly less than for similar mills in the North.

### **Probable Mill Locations and Freight on Paper**

There are substantial timber areas in the eastern coastal region and in order that fuel (oil or

coal) might be delivered by water and that shipments of paper might be made in the same way throughout the entire year, it seems logical that any development of the newsprint industry in the South would commence along the Atlantic coast. Water rates on newsprint from these points to main centres, such as Washington, Philadelphia, New York and Boston, indicate a difference in transportation costs in favour of the Southern mills of about \$4.00 a ton over rail rates from mills in Ontario, Quebec, and New Brunswick to similar delivery points.

### Capital Charges

I feel we can say that a reasonable capital requirement for a balanced 4-machine mill, with sufficient timber limits, in Eastern Canada, exclusive of any hydro electric plants but including working capital, should be about \$32,000 per daily ton, whereas in the South a mill on the same basis but *including* power plant can be set up for about \$29,000 a ton. Interest, sinking fund and depreciation on this difference of \$3,000 at 12% means about \$1.00 a ton in favour of the South.

### Summary

Summing up the discussion on the various factors it appears there would be a total difference in cost of paper delivered in large consuming

centres along the Atlantic coast of about \$8.00 to \$9.00 a ton in favour of a Southern mill over a typical up-to-date Canadian mill located in Ontario or Quebec. The main differences being \$3.00 to \$4.00 a ton of paper for wood, \$1.00 for capital charges and \$4.00 for freight.

Now if we analyse the problem to see how we can best try to meet this seemingly probable competition, we can group the principal variable factors of cost under the following headings:

1. Manufacturing.
2. Wood.
3. Power.
4. Transportation of supplies and finished product.

Discussing these in the order named, it seems reasonable to say that anything we can do towards improving the technique of manufacturing, and thereby lowering this item of cost, can also probably be done in the South. Therefore the best we can hope for in this direction, over a period of time, is to maintain manufacturing costs at a level not above Southern mills.

Canadian bush wages, which are about 40% of the total cost of wood, cannot be reduced; in fact, any slight improvement in general business conditions will cause an increase in this item, consequently it would appear that the only help or relief of any consequence in reducing the cost of

pulpwood must come from lower rentals and taxes on timber lands, and lower stumpage charges.

The average price of purchased power is too high to paper mills in Canada and the form of power contracts too inflexible. The future must bring relief to newsprint mills on both phases of this important factor.

Freight rates on coal and other supplies, and on the finished product, must also be given careful study for adjustment to a lower basis.

### Conclusions

The paper made from Southern pine to date, indicates the necessity of further study on the problem before it can be established that pulps may be made from this wood that will form, on a commercial basis, a good grade of newsprint. However, with the powerful advantage of indicated lower costs, the unquestionable desire of Southerners for the establishment of industries in their territory, and having regard for all the technical ability active on this problem, it appears reasonable to prophesy that methods will very soon be found to overcome any possible difficulties of successfully manufacturing, on a commercial basis, a merchantable quality of newsprint from these woods.

It is well to remember that 15 or 20 years ago the North, including Canada, was making practically all the kraft paper for this continent, and the

South experimenting with their pine woods for this same market. But in the last nine years the production of kraft pulp and paper in the United States has more than doubled, and this increase has been principally in the South. Over the same period the exports of kraft pulp from Canada to the United States have decreased by more than 60%.

In conclusion may I say that the only way our newsprint industry can expect to continue on a stable basis and meet the threat of Southern competition is by ridding itself of all unnecessary financial burdens, placing the control of its mills in the hands of men with sound business judgment and seasoned industrial experience, and by putting its house in order generally so that it may always make the highest quality newsprint at the lowest possible cost.

However, to reach this objective will require the closest co-operation of our Governments, Power Companies and Transportation organizations who are receiving large annual incomes directly and indirectly from the paper mills. If these interests are going to retain this business, they must assist in reducing the cost of delivered newsprint. If our important Canadian industry is to withstand the serious threat of Southern competition, action had best be taken before Southern newsprint mills are built; afterwards, it will be too late.

From *Savannah Morning News*, Nov. 21, 1933.

## **Publishers Laud Dr. Herty's Paper**

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**Savannah-Made Newsprint Proves Its  
Efficiency**

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### **PRESS RUNS OKEHED**

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**Georgia Newspaper Officials Vouch  
for Its Quality**

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Officials of Georgia newspapers which yesterday printed several editions on newsprint made at the paper laboratory in Savannah from Georgia pine, commented favorably on the results obtained, according to an Associated Press dispatch from Atlanta.

Clark Howell, editor and general manager of the Atlanta Constitution, said: "I was informed by the pressman that he never had a better run in his life. The paper looked fine and exceeded all expectations."

John Paschall, managing editor of the Atlanta Journal: "Our early edition printed on Georgia pine was beautifully printed. The paper takes ink well with cuts printing up as well as on paper from other woods we have used. We are delighted with the new paper."

Leonard Roan, managing editor of the Atlanta Georgian: "The Georgian's first trial of pine pulp paper has been surprisingly satisfactory. The pine paper seemed a bit softer than spruce paper but has a good finish on both sides and is quite strong. One press ran an edition of 20,000 copies without a break. The printing was as good as on spruce paper."

P. T. Anderson, Jr., assistant general manager of the Macon Telegraph and Macon News:

"The press run for this morning's paper was a huge success. The paper far surpassed my expectations as to what it would do. There was apparently no static as has been very annoying for the past few days. The entire run was made without a single break that could be blamed on the paper. The spring was as good as on any other newsprint. The ink penetration was sufficient to give a good print and yet did not show in white spaces on the reverse side. We found we got sixty-five pages to the pound on paper which is comparable to any other newsprint. The toughness, yet softness, of the paper was very noticeable. Dr. Herty is certainly to be commended for putting out such a superior product. I am all for it."

W. M. Pryse, managing editor of the Albany Herald, said today's edition of the Herald was printed on the Georgia newsprint and "worked to a perfection on our press. There was no break

of the web or anything that looked like one. The print was excellent and clear, and left nothing to be desired. Subscribers spoke with pleasure of the soft, smooth texture and whiteness of the new paper. Our experience with Georgia pine newsprint was more than satisfactory in every way."

The Brunswick News reported "great success" with the newsprint and said the News "went through its full press run without trouble or breaks in the web. No difficulties were experienced and the pressmen were delighted with the print."

Jack Williams, editor and publisher of the Waycross Journal-Herald, said, "Our experience with newsprint made from Georgia pine was eminently successful in every way. The score stands, no breaks, free from static, clear print, perfect ink distribution. In fact, we have never had a more satisfactory run. Another thing about this Georgia paper, while strong enough to avoid breaks, it seems much lighter than the paper we have been using, which will mean a saving in mailing expense. We are ready to contract for Georgia paper exclusively. More power to Dr. Herty and his associates who have made this great feat possible."



From *Savannah Morning News*, Nov. 20, 1933.

## **Georgia Pine Pulp Runs at Top Speed Through Big Canada Paper Machines**

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**Dr. Charles H. Herty Witnesses Successful  
Tests of Product from Savannah  
Laboratory**

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### **THE PULP JOURNEY**

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Five sections of a circus train were arriving in Savannah at half hour intervals on Sunday afternoon, October 22, 1933, en route to Jacksonville. The purpose of the stop was to feed and exercise the animals. The news spread abroad and soon the railroad yards were filled with excited children accompanied gladly by their equally eager parents. Ropes and police were required to restrain the over-eager sightseers.

In the midst of these gay surroundings three phlegmatic refrigerator cars stood on a sidetrack waiting to be made a part of the fast northbound fruit and vegetable express of the Seaboard Air Line Railway, and destined for Canada.

Little did the happy multitude realize with what infinite potentialities for the whole South were

these cars laden. The bills of lading showed only three words, "Pulp of wood." To a newspaper man these words would have fully met Mr. Dana's definition of what is news. For the first time in history Georgia pine pulp for newsprint was being shipped to Canada. Why? To answer the question, submitted often almost as a dare, could this pulp produce on a fast commercial paper machine as good grade of standard newsprint as had been produced on our small and slow laboratory equipment. If so, the case was made up, for all the economics favor the South as the seat of a future great newsprint industry.

The small staff of the laboratory, augmented by additional common labor, had been divided into two shifts and had been at work continuously for several weeks producing the twenty-five tons of chemical and mechanical pulp required for the test. This pulp, mixed with seventy-five tons of water, constituted the precious load. Temporary storage of the ground sapwood, as manufactured, in a room generously placed at disposal by the Colonial Ice Company insured against deterioration during the prevailing hot weather.

At 6:40 p. m. the three cars left Savannah and on the following Saturday morning they reached Thorold, Canada, about twenty miles distant from Niagara Falls, and were promptly shifted to the unloading sidetrack of the Beaver Wood Fibre Company, Limited. I had ridden the switch en-

gine in the Savannah yards when they were being lined up at the start of the trip, and couldn't help stepping apart from the two "Bills," McNaughton and Allen, and patting these bearers of such a historic load in congratulation upon the successful end of their long journey.

But why Thorold? Because after months of search there had been found a group of men who were willing to co-operate, to give the pulp a fair test, to contribute their machinery and men without charge and who would give us the paper manufactured. With this latter asset in prospect there had been no difficulty in financing the freight costs through the daily newspapers of Georgia who were promised pro rata shares of whatever paper was produced for use in special editions on all-Georgia-pine newsprint.

The officers of the company were frankly interested in the outcome, for the Beaver Wood Fibre Company, Limited, is a subsidiary of the Certain-teed Products Corporation which had already shown its faith in the South by the erection of two roofing plants in the South—one in Texas, the other in Georgia, at Savannah. John Ball, the manager of the Thorold plant, was well known throughout the industry as an excellent paper maker.

A rush order from a nearby city for a supply of paper caused a postponement of the experimental run. Finally, Wednesday, November 1,

was set as the day for the test. Preliminary tests of the pulp had already been made. All morning the beater mixers had been busy preparing the proper mixture of sulphite pulp and groundwood and filling the great stock chest in order to keep ahead of the fast paper machine. All day men with water hose had been engaged in washing out every trace of spruce pulp from every piece of the equipment. At 5 p. m. all was in readiness.

There was drama in everything. A great hall two hundred by five hundred feet down the center of which extended the paper machine; in a balcony stood John Ball overseeing the whole; here and there darted Henry Zieman, the superintendent, giving instructions. Every man of the machine crew was at his post. We were seated atop bales of old paper, for our part was done. Water was being sprayed on the rapidly traveling wire, the steam-heated drying rolls were revolving; so, too, were the calender rolls.

Suddenly the wire began to look milky—the pulp was on its way to paper. Back it went to the stock chest, thicker and thicker grew the wet sheet. The vacuum gauge on the suction-couch showed 13. At 15 the sheet would have the right thickness and be ready to go.

The 4 o'clock shift had hurriedly returned and were crowding the doors. Everything was a-tingle. Then the gauge began to fall, the sheet thinned and again the wire was free of pulp.

Henry Zieman was not satisfied with all of the adjustments. He had told me earlier that he was not going to let the experiment begin until he was sure everything was right. A wait of fifteen minutes seemed like a year.

Again came the milkiness on the wire, the vacuum gauge mounted steadily, thicker and thicker grew the wet sheet. Suddenly, with cat-like spring, a machine attendant threw a streamer of pulp toward the second press. It held—and soon a sheet one hundred and fifty-five inches wide was going through those press rolls—but still back to the stock chest.

Now was the crucial moment. Would the sheet have sufficient wet strength to stand the tension as it passed to the drying rolls? How clever would this Canadian boy prove himself in throwing the streamer of pulp to the ropes which would guide the sheet over the long succession of steam-heated drying rolls? My heart almost stood still. Another cat-like movement and over it went.

I jumped from my perch and with two workmen followed its rapid progress over the rolls. There at the end was a wide sheet of white paper going down to the basement. Another workman with a dexterous slit with a knife and a blast of compressed air lifted the sheet to the top of the calender stack. A crackling sound told the story that it had been grabbed. Down it came, in and out, from one roll to another, spreading wider and

wider across the rolls, then on to the reel where the winding of the roll began.

There was the first sheet of commercial newsprint from young Georgia pine, pure white and smooth surfaced. John Ball seized a piece to inspect the formation. He was abundantly satisfied. He turned to me, his face all aglow, and exclaimed, "We are going to lick it, Doctor." "Give me that first piece," I replied, and wrote his words upon it.

Soon the 32-inch roll was removed to the rewinder, where it was slit and the edges trimmed, and out on to the storeroom floor rolled the first two rolls of Georgia newsprint, waiting only to be wrapped, weighed, marked and stored in the Canadian National car waiting for the shipment home.

But we all waited for a break in the paper—a not uncommon experience in any newsprint mill. We wanted to see the repair crew do its skillful work. Hour after hour we waited, munching crackers and chocolate for supper. And still no break.

About midnight, Henry Zieman said to me, "The sulphite is going to run short. Shall I begin mixing in some of our sulphite and so be able to fill all of your newsprint orders?" It was an awful temptation for a moment; then common sense came to the rescue. "No," I replied. "I have never yet faked my folks. They will have

GEORGIA PINE BECOMES CINDERELLA OF PAPER INDUSTRY

"We are going to  
lick it, doctor!"

John Ball

11/1/33

5-20 P.M.  
715 ft per minute

End of Run

Not a break in  
a bar load.

Henry C. Ziemann

Nov 2-1933 - 1:35 AM

As to Pitch

No signs of pitch  
anywhere.

Henry C. Ziemann

A LEAD PENCIL ON PAPER MADE FROM GEORGIA LOBLOLLY PINE—Here is the concise drama directed by Dr. Charles H. Herty at the Canadian mill of the Beaver Wood Fibre Company. The pine pulp ran at top speed through the big machines for over eight hours and at climactic intervals, John Ball, general manager, and Henry C. Ziemann, superintendent of the Beaver concern, jotted down their historic notes. Two tests were uppermost—would pine pulp break, and would it leave pitch on the machines? You can find the answer, an answer which means millions to Georgia. This cut obtained through courtesy of The Atlanta Journal.

to stand a cutting down of their shares, for I want them to be able to say truthfully that every fiber in the sheets of their special issues was grown on Georgia soil."

At 1:30 a. m. we were nearing the end of the run. The pulp supply was almost exhausted. As the last tailing of the sheet came over the reel at 1:45 a. m. I jumped for it, for I wanted that souvenir. Up came Henry, the superintendent, exclaiming, "Not a break in a carload." "Write that down on this last piece of paper," I replied. He did so. Then he tore off from the recording machine the permanent record showing that not a break had occurred during the entire run, saying I should have it so that my word would never be questioned on that point.

What a load was lifted now that it was all over. Henry proceeded to inspect the entire machine and a little later came back to me saying, "No sign of pitch anywhere." "Write that down on the same paper," I replied. He did so. I was not surprised, for we had made our analyses before we left Savannah, but I wanted my friends throughout the paper industry to have the word of the man who made the run. It is difficult for them to believe, but it is true. And this fact assures a paper industry eventually for the South.

On the following day all rolls were covered, labelled for the respective newspapers in Georgia, packed in the car, started on the return journey,



which was quickly made in five days, and distributed for use on November 20—a day which I believe will mark the beginning of a new period of industrial and agricultural life in Georgia.

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From *Atlanta Journal*, Nov. 20, 1933.

## Authority on Wood Fibre Testifies to Triumph of Herty's Pine Experiment

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Most remarkable of all the exhibits in the story of the Cinderella of the paper industry—the Georgia pine—is the letter from John Ball, manager of the Beaver Wood Fibre Company, of Thorold, Canada, to Dr. Charles H. Herty.

Dr. Herty took his pulp to the Beaver mill for a test run, and Mr. Ball personally supervised it.

In this communication this impartial expert gives an opinion of the worth of pine pulp which cannot be controverted, and which emphasized the tremendous triumph Dr. Herty achieved in his crucial battle of a long hard fight. The letter follows:

“Thorold, Ontario,  
“November 2, 1933.

“Dr. Charles H. Herty,  
“510 West River Street,  
“Savannah, Ga.

“Dear Dr. Herty:

“It is with a great deal of pleasure that the writer is able to report to you the results which were obtained in making a newsprint run from your Georgia pine, sulphite pulp and groundwood.

“Before making this run all tanks were cleaned out and every possible thing was done to have no other stock in the system but yours.

“The writer is very pleased to learn that there was no pitch at any time and in fact the paper which we ran stuck to our first press roll 75 per cent less than it would on our regular spruce pulp.

“We started on this run at 5:18 p. m., November 1st, and we ran from that time until 1:35 a. m., November 2nd, without having a break on the machine. In other words, it ran 100 per cent perfect as far as the paper machine operation was concerned. As you can quite readily see, it took a fairly good surface, but the writer is of the opinion that with a little more experience with your sulphite and groundwood you will be able to get a still better surface, a much cleaner and better sheet of paper. The formation was excellent as you will note from the samples submitted.

“For your information, this paper was run at

a speed of from 745 to 750 feet per minute, and if we had had more pulp we would undoubtedly have run faster. In my opinion we could run at any speed within reason that any of the higher speed 1,200 feet per minute machines would run.

“We find it takes less steam to dry this paper than it does our regular spruce woodpulp. Ordinarily we run on our machine from 8 to 10 pounds back pressure, but we found when running this pulp that our back pressure was down as low as 1½ pounds, which, to the writer, was a revelation.

“You understand, of course, that your paper was made upon the same wire, same felts, and under identically the same conditions as we operate when on our regular newsprint. There were no changes of any kind made.

“The paper calendered fairly well, ran perfectly on the winder and made perfect rolls. We will, however, forward you more technical details when the laboratory reports are all in.

“We took particular care in wrapping the paper and loading it, so as to insure its arrival at its destination in good condition.

“By this test you have proven that your young southern pine is in a high sense suitable for the manufacture of newsprint. You know better than I, the material economic advantage of your section in the rapid production of such material. The carload of paper now on its way to Georgia

cities may mark the beginning of a great industrial development for the south.

“Trusting that I may have the pleasure of seeing you in the very near future, I remain

“Yours very truly,

“The Beaver Wood Fibre Co., Ltd.,

(Signed)

“JOHN BALL,

“Manager.”

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From *Macon Telegraph*, Nov. 20, 1933.

## **Production Cost of Paper is Low**

**Georgia Newsprint Can be Produced More Cheaply Than Product of Canadian Mills**

By **CHARLES H. HERTY**

Constantly throughout the past year I have been asked for a definite figure on the cost of producing newsprint in the South. I have consistently declined to give this because of the conviction that insufficient data had been obtained in the laboratory to justify it. That time is now past. There is given below a detailed estimate of cost which Mr. W. G. MacNaughton, Mr. W. F. Allen and I have computed from our laboratory records.

The capital charge is based upon estimates furnished us by two expert newsprint paper mill

engineers who have visited Georgia and studied local conditions thoroughly.

### Cost of Newsprint Production

On a basis of 150 tons daily capacity or 45,000 tons annual production—

#### Conversion Costs Per Ton:

Alum .....	\$0.10	
Color .....	0.06	
Wrapper .....	0.30	
Sulphur .....	0.60	
Limestone .....	0.10	
Clay .....	0.04	
Wood [1.15 cords (Rough) @ \$4]..	4.60	\$ 5.80
Labor, including administration...	5.08	
Pulpstones .....	0.20	
Felts .....	0.60	
Wires .....	0.25	
Belting .....	0.10	
Lubricants .....	0.08	
Steam .....	1.50	
Electric Power .....	4.00	
Finishing .....	0.50	
Liability Insurance .....	0.15	
Teaming .....	0.15	
Miscellaneous Materials .....	0.15	
Repair Materials .....	0.50	13.26
Total Conversion Cost .....		<u>\$19.06</u>

Capital Charges (Based on a total investment of \$4,027,500):

Interest @ 6% .....	\$5.37	
Sinking Fund @ 2% .....	1.79	
Depreciation @ 5% .....	4.48	
Taxes and Insurance .....	0.25	
Selling Expense .....	0.75	\$12.64
Total Conversion Cost .....		<u>19.06</u>
Total Cost Per Ton .....		<u>\$31.70</u>

In the March, 1933, issue of Pulp and Paper of Canada, Mr. John Stadler, a distinguished paper mill engineer, published an estimate on conversion costs of newsprint in Canada in 1933 amounting to \$27.90. This is in striking contrast with the foregoing estimate of \$19.06 in the South.

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From Bulletin No. 174 "B" Special, February 7, 1934, of the American Newspaper Publishers Ass'n.

## Association of Newsprint Manufacturers of the United States

342 Madison Avenue, New York City

### Weighted Cost of Newsprint Paper

Excluding Interest on Indebtedness and Return on Investment. 24 Companies

	Per Ton, 1933	
	First Six Months	Third Quarter
Wood .....	\$10.09	\$10.00
Purchased Pulp .....	1.78	1.82

Sulphur .....	.40	.42
Alum, Size, Color, Etc. ....	.57	.67
Limestone .....	.10	.11
Pulpstones .....	.11	.11
Fuel .....	2.52	2.24
Power .....	3.43	3.51
Repair Materials .....	.93	1.05
Wires & Machine Clothing ..	1.18	1.17
Supplies .....	.27	.31
Finishing & Shipping Material	.49	.49
Labor .....	5.61	5.76
Factory Burden & Miscellaneous .....	1.76	1.57
Insurance .....	.28	.24
Taxes .....	.97	.95
Depreciation .....	3.57	3.23
Depletion .....	.51	.51
General & Administrative Expense .....	1.97	1.70
Selling Expense .....	.90	.87
Delivery to Destination Points	5.84	5.98
	<hr/>	<hr/>
Total .....	\$43.28	\$42.71
Tons Produced .....	427,299	230,676
Per Cent Capacity Operation of Mills Making This Tonnage	70.8%	76%

(Signed) R. S. Kellogg, Secretary.

January 13, 1934.

We have with great care ascertained the actual cost of the production of newsprint in the United States during the first six months of 1933, and we hand you herewith a statement of this cost in detail. This statement shows \$43.28 a ton to be the actual cost of production and delivery of 427,299 tons of newsprint. This is over 97 per cent of all the newsprint produced in the United States during those months. (The figure for the third quarter, reflecting the increased volume and better seasonal operating conditions for that period, was \$42.71 a ton.) These costs do not include one cent of return on the investment, or even any bond interest or bank interest. They demonstrate conclusively that newsprint is today being sold below cost without figuring in cost any return whatsoever on the huge capital investment required. Moreover, these costs are prior to the full impact of the higher costs caused directly and indirectly by the N. R. A., the monetary policy and the other elements of the recovery program. These additional costs can hardly fail to be at least \$4.00 or \$5.00 per ton.

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From *Macon Telegraph*, Nov. 20, 1933.

## **The Chemical Foundation—What It Is**

There have been so many inquiries as to what The Chemical Foundation is that I was glad while in Atlanta last week to give an interview on this



subject to a representative of The Atlanta Constitution, which was printed in its issue of Nov. 10 and is as follows:

“The Chemical Foundation was organized in February, 1919, by authority of President Wilson to take over at an agreed price 5,000 German patents seized by the government as authorized by congress in order that through the patents the country might be made independent of foreign sources of chemical supplies, and that the grip of the German chemical industry on the United States might be broken.

“The Foundation, under its charter, is a non-profit organization, no stock, preferred or common, paying over 6 per cent interest. Officers serve without pay. The president is Francis P. Garvan, who was alien property custodian under Wilson. The Foundation must lease the right to operate under the patents under equal terms to any American manufacturer, and from these leases and from small royalties paid by the manufacturers its sole income is derived.

“All profits over 6 per cent must be given away to research and education in chemistry and allied sciences as applied to industry. The Foundation has no assets other than its patents. During its 15 years of existence it has never paid dividends, not even the 6 per cent interest.

“Through gifts it stimulates scientific work in many fields, and enables the full publication of

scientific papers. It distributes popular books on chemistry to educate the people of the United States as to the part chemistry plays in the national life, to stimulate research, especially in matters pertaining to health.

“At one time President Harding demanded the return of the patents on the ground they had been illegally sold to The Foundation, and he ordered the alien property custodian, Thomas Miller, to bring suit for recovery under the direction of the then attorney-general, Harry Daugherty.

“The Foundation resisted the suit, the federal court denied every claim of the Harding administration. Furthermore, the presiding jurist commended most heartily the purpose of the administration of The Foundation under Mr. Garvan. The administration appealed to the circuit court at Philadelphia and the unanimous opinion of the court was in favor of The Foundation. The administration appealed to the supreme court, which found for The Foundation in a unanimous opinion.”

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From *Albany Herald*, Nov. 20, 1933.

## **Friends Aided in Pine Experiments**

### **Many Obstacles Overcome Through Financial and Other Aid**

The carrying through of a large-scale commercial run of newsprint made in a far-distant

plant from pulp manufactured in a semi-commercial research laboratory involved grave difficulties, especially as the experiment came at a time when the finances of the laboratory were at their lowest point.

It was fortunate therefore that we found in the Beaver Wood Fibre Company, Limited, of Thorold, Canada, a subsidiary of the Certain-teed Products Corporation of New York City, a plant equipped with a machine of the type which would give a fair test on speed production without taxing too heavily the facilities of the laboratory.

The Certain-teed Products Corporation has for years been interested in the South, having one plant in Texas and one in Savannah, Georgia, where it manufactures asphalt roofing both in roll and in shingle form. This company makes Atlanta, Georgia, headquarters for its Southern sales office. Mr. A. Whittemore, president, and Mr. Robert M. Nelson, secretary-treasurer, of the Beaver Wood Fibre Company, Limited, entered heartily into carrying out this commercial run. So, too, did Mr. John Ball, the manager of the Thorold plant. Mr. Ball is a paper maker of long experience in New Brunswick and Quebec prior to his connection with the present plant. His abilities have been widely recognized throughout the newsprint industry.

It was the offer of these officials to make the run without charge and to return the paper manu-

factured to us that made possible the experiment. For with this paper as an asset we felt justified in going to the publishers of Georgia dailies and asking financial contributions from them for the payment of freight and the expense of preparing the wood.

Special thanks are due not only to Mr. Ball for his personal interest and supervision of the experiment but also to Mr. Henry Zieman, superintendent of the paper division of the Thorold plant, and to all of the working force in the paper mill who gave such enthusiastic effort toward making the test fair and complete.

### Contributor Papers

The following Georgia dailies contributed to the expense of the experiment: Albany Herald, Athens Banner-Herald, Atlanta Constitution, Atlanta Georgian, Atlanta Journal, Brunswick News, Macon Telegraph, Savannah Morning News and Waycross Journal-Herald.

In addition to their contributions, Mr. Alex Sessoms, a large landowner of Cogdell, Ga., voluntarily contributed to the expense, and the balance was made up from laboratory funds.

The wood used, loblolly pine, was contributed by Mr. Dan Newton, a citizen of Chatham county, Georgia, long connected with timber and naval stores interests and at present actively engaged in reforestation.

Owing to the extended time required for the preparation of the pulp during a very heated spell then prevailing, fears arose about the deterioration of the pulp, all sapwood in origin, from fungus attack. This danger was removed through the generous cooperation of the Colonial Ice Company of Savannah, Ga., which contributed without charge adequate cold-storage space for the pulp until it was ready for loading in the freight cars.

We are indebted also for generous cooperation from the officials of the Seaboard Air Line, which shipped the pulp from Savannah, and to the officials of the Central of Georgia railway, which handled the return and distribution of the paper.

Finally, no adequate words of appreciation can be given to the members of the laboratory staff who, divided into shifts, gave loyally their best efforts in time and over-time, working continuously for some six weeks to make the experiment a success. Such spirit as they exhibited cannot be estimated in dollars and cents.

From *Macon Telegraph*, Nov. 20, 1933.

## Nine Newspapers Make Final Test

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Publication Today Completes Last Link of  
Herty's Experiments with Pine Pulp

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By HOWARD W. BLAKESLEE  
(Associated Press Science Writer)

Nine leading daily Georgia newspapers tomorrow will issue the regular editions on newsprint secretly made from Southern pine trees as a demonstration of closing the last big link in American chemical independence.

This link, as scientists see it, is the manufacture from home resources of newsprint and all the high-grade white paper. Newsprint now is an annual business of about \$140,000,000, and two-thirds of it is imported.

The secret manufacture was undertaken to answer the final thing which newsprint experts had asserted could not be done. They said American chemists could not make from Southern pine forests sulfite and pulp which could run at commercial speed through a real papermaking machine—not at the 750 or more feet per minute of paper produced from Northern spruce trees, now the great source of white paper.

Georgia scientists had been making good white

newsprint at about 100 feet a minute at a Savannah laboratory plant, under direction of Dr. Charles H. Herty. But in the whole South there was not available a great mill for newsprint to answer the speed objection, the last of a dozen raised during the three years of this Southern development.

Some Georgia dailies chipped in money—hired three cars of a fast refrigerator train. Into these the little Savannah plant poured Southern pine pulp—25 per cent sulfite, 75 per cent ground pulp.

This was all made from pine trees about 15 years old, against the 50 years required for equal spruce growth. They were even bigger than spruce, so that Dr. Herty estimated that six spruce logs would have been required for the pulp from five Southern trees.

In the fast train the pulp was shipped to the Beaver Fibre Paper Corporation, Inc., at Thorold, Canada. There the pulp was put into a commercial machine, the same as spruce pulp. For eight and a half hours the Southern pulp ran until it was all gone, a full carload of paper produced, in standard rolls.

Not once was there a break in the speeding rolls. This was the big test. Experts had predicted breaks. "Not a break in a carload," a Canadian foreman wrote on the mill's record. Dr. Herty said it dried a little better than spruce.

Most of the imported newsprint now comes

from Canada. Increasing amounts are arriving from Norway, Sweden, Finland and Russia. Dr. Herty says the South's 150,000,000 acres of timber lands can make the United States independent in newsprint; that all grades of the finest book and bond papers can be made from these Southern pines.

The states growing these trees are Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Missouri, Texas and Oklahoma.

Spruce pulpwood costs about \$10 a cord, Dr. Herty says, against about \$3.50 for Southern pine; also that the burst strength of the Southern paper is better, its weight lighter and consequently freight likely to be lower; that trees 10 to 13 years old can be used for commercial production. He has made paper from specially fast-growing Southern pines only seven years old.

A discovery three years ago that there is no pitch in Southern pines under 25 years old started the paper-making research. Until then the experts believed Southern trees were filled with pitch, which spoils newsprint. Dr. Herty proved that the pitch is only a pathological product, like pus, which forms in the wound when the tree is gashed.

Successively the Georgia scientists answered objections that their paper would not "felt"; that it was not as pure white as standard news-



print from spruce; that it was too crackly, too soft, and more expensive for pulp grinding than spruce. They produced paper and expense figures on a par with the best standards.

Their processes are not patented. They are open to the use of the papermaking industry anywhere.

The newspapers participating are the Atlanta Constitution, Atlanta Journal, Atlanta Georgian, Savannah Morning News, Macon Telegraph, Waycross Journal-Herald, Albany Herald, Athens Banner-Herald, and Brunswick News.

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*From Athens Banner-Herald, Nov. 20, 1933.*

## **Newsprint Victory Value is Revealed**

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### **Painstaking Research Has Opened New Field of Industry to South**

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World consumption of paper of all kinds amounts annually to 18 million tons, valued at nine hundred million dollars. It is a striking fact that of these 18 million tons 12 million tons, valued at six hundred million dollars, are consumed annually in the U. S. A.

In view of the constantly increasing uses of cellulose no one should dare to estimate what the consumption will be at the end of the next decade.

The important item in the field of white paper is newsprint, the annual consumption of which in the U. S. amounts to 3.5 million tons, valued at one hundred forty million dollars. A few years ago the U. S. produced two-thirds of its newsprint requirements and imported the remaining third. However, as log supplies in the northern tier of states diminished, capital—much of it American capital—was led to extend the industry enormously in Canada. So that now the figures are reversed, the U. S. manufacturing only one-third and importing, mainly from Canada, two-thirds of its requirements.

In this recent development the trend was to follow that particular species of tree, spruce, to which the industry was accustomed, disregarding the fact that such new sources of supply must gradually dwindle and cost of transportation of raw material therefore steadily increase; and ignoring the fact that here in our own country were millions of acres of idle lands where because of high temperature and humidity ideal conditions offered themselves for a cheap and permanent source of cellulose production. The South Atlantic and Gulf states represented that ideal.

But here again the situation was complicated by ignorance on the part of technical and scien-

tific men about the prevailing species of tree in this Southern section of the country, viz., pine. No distinction was made between sapwood and heartwood. The production of naval stores gave the impression of a pitchy wood utterly unsuited for chemical or mechanical pulp. And so American capital added to Canadian built up the industry in a foreign country.

Recent research, however, has shown the grievous economic error which capital made. Small-scale experiments, often confirmed since, showed that the sapwood of the pine is as free of resin as the spruce. Another small experiment showed that this sapwood could be easily pulped by the sulphite process, that generally employed in the newsprint industry, giving a very light colored product. And, finally, a small grinding experiment showed that a mechanical pulp lighter in color than spruce groundwood could be easily obtained with no extra amount of power required for grinding.

These preliminary experiments led to the founding of the present pulp and paper research laboratory at Savannah, Ga., through the contribution of the equipment by the Chemical Foundation, Inc., an annual appropriation for two years by the state of Georgia for maintenance and operation, and a contribution by the Industrial Committee of Savannah of the rental of a suitable

building, free power, fuel oil for steam, water, wood, etc.

In this laboratory it was soon demonstrated that young pines, under twenty-five years of age and therefore free of heartwood, could be pulped with equal ease by the sulphite process, microscopic studies of the fibers showing the product to be practically identical in all species.

The danger of blue stain, a fungus growth, characteristic of hot, humid climates, was overcome by the use of green wood; and the pulps from such green wood proved remarkably free from pitchy material. These pulps were very light in color, indicating a low bleaching requirement for uses other than newsprint.

Many experiments on groundwood showed that this mechanical pulp could be manufactured well within commercial limits as to power requirements. The mixed chemical and mechanical pulp in the proportion commonly employed in newsprint mills felted readily on the paper machine and yielded newsprint of high quality. The commercial run showed that this felting quality was preserved on the regular high-speed machines.

The economics of the situation are so favorable in the South that the conversion costs of wood into newsprint amount to \$19.06 per ton as compared to \$27.90 in Canada. These results point the way to a utilization of the thinnings in the reforestation development now proceeding so rapidly in

the Southern states. But it has also been proven in the laboratory that small pines, less than 9 inches in diameter, which have been turpented for three years and discarded by the naval stores industry and remaining in the woods as utterly useless material are equally valuable for newsprint manufacture if the sacrificed portion of the trunk is discarded. This one experiment alone puts no less than 30 million cords of wood located generally in southeast Georgia and northern Florida available for newsprint manufacture.

Such pine as the loblolly and slash pine will produce an average yield of from 1.5 to 2.0 cords of wood per acre. As there are at present at least 100 million acres of cut-over lands in the South not needed for agricultural purposes and 25 million acres of abandoned farmlands it is clear that here lies the opportunity for the production not only of all the paper needs of this country but for the development of a large export trade.

The work of the Civilian Conservation Corps in providing means for controlling fire in the woods insures an annual reproduction of pine on a vast scale, and the demonstration in this laboratory of the suitability of these young pines for white paper manufacture assures the future independence of the U. S. in the matters of newsprint supply.

Fortunately, the Industrial Committee of Savannah has secured by lease from the state of

Georgia the use of the laboratory equipment for future research; and financial support from the Chemical Foundation will make possible two more years and, if necessary, still a third year, for further developments in the field of white paper manufacture.

## Editorial Comments

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From *Atlanta Journal*, Nov. 20, 1933.

### Crowning the Proof of a Great Georgia Discovery

The paper on which these words appear was live and green, not long ago, in the form of young Georgia pines. How they were transmuted from their woodland estate of brown earth and blue sky into "newsprint" for roaring presses is a story full of wonder, of watching and waiting, of adventure and achievement. Hans Andersen saw a little fir tree carried forlornly away from a Christmas fireside, and he wove it into a charming fairy tale. Charles H. Herty saw a common pine tree growing like millions of others in a Georgia field, and he made it into a true romance of science and industry. That is why this issue of *The Journal* is printed on paper produced from our own State's forests; and that is why the future of paper manufacturing in America will belong to the South.

Until Dr. Herty began his epoch-making experiments, it was supposed that Southern pines were unsuitable for the better paper pulp, chiefly because of their high content of resin. He discovered that this objection holds for heartwood pine only, and that sapwood, which is characteristic

of the young trees, presents no such difficulty. Thus at one stroke, by one discerning glance, an old prejudice was broken down and a way opened for immense developments. Dr. Herty discovered further that the fiber of these young pines can easily be "pulped" by the process commonly used in the newsprint industry, and that it will bleach well-nigh perfectly. All that was worked out in the research laboratory at Savannah; but there remained one question: Would this pulp stand the test of commercial manufacture on a large scale? Accordingly, twenty-five tons of the material was shipped to one of the world's greatest paper mills, that of the Beaver Wood Fibre Company, Ltd., at Thorold, Canada; and there for more than eight consecutive hours it was "raced" through the gigantic machines. The result is a newsprint paper which the Canadian experts themselves pronounce superior, in some respects, to that produced from their own country's spruce pulp, and which demonstrates once for all the value of Southern pines for high-grade newsprint manufacturing.

What does this signify to Georgia and her neighbor States? The world uses annually eighteen million tons of paper, twelve million of which is consumed in our own country at a cost of some six hundred million dollars. Of newsprint paper alone we consume one hundred and forty million dollars' worth a year, and two-thirds of this we



now import, chiefly from Canada. Such is the demand. For the potential supply of this immense market the South has pine trees, millions of acres of them, which not only grow far more rapidly than the Northern spruce, but which also can be converted into pulp at far less cost. The authoritative figures are given in our news columns. Further, those pines which are not usable in the naval stores industry or for lumber are the very ones suited to the manufacture of newsprint paper. Nature herself sows them continually, even on gullied hillsides and in old barren fields, speeds them to harvest in comparatively a few years, and requires only that they be protected from fire. In the South there are one hundred million acres of cut-over lands and twenty-five million acres of abandoned farm lands which can be turned to goodly account in growing fast-maturing timber crops. In the light of these conditions, the now-demonstrated superiority of pine-pulp for making newsprint paper, along with its many other uses in the wide range of the cellulose industries, becomes the most meaningful fact in the last fifty years of the South's economic history.

Georgia's part in this great discovery should bring pride and gratitude to all her people. In the pulp-and-paper research laboratory at Savannah has been made the crowning history of her bi-centennial year. For that enterprise we are

indebted, partly, to an initial appropriation from the State, more largely to generous gifts from the Chemical Foundation, Inc., and from the Savannah Industrial Committee; but most of all to the genius and devotion of Dr. Charles H. Herty. He has seen a vision and wrought a deed and blazed a trail to a new empire of opportunity.

From *Savannah Morning News*, Nov. 20, 1933.

### Proof of the Pudding

Almost simultaneously this morning the Savannah Morning News and eight other leading dailies of Georgia are issuing editions printed on newsprint made from loblolly pine trees, which abound among the hills, valleys and plains of the state. The copy of the paper you are reading and the copies of papers published in other leading cities in Georgia which thousands of others are reading, give forcible and absolute proof of the practicability of Georgia-manufactured newsprint. "The proof of the pudding is in the eating."

It has been clearly demonstrated that when Dr. Charles H. Herty conceived the idea of transforming vast stores of pine into paper pulp it was no idle dream. The dream has become a reality. It has been indisputably shown that a paper pulp plant making newsprint can be operated more economically, and therefore more profitably, in

Georgia than anywhere else. And the day is not far distant, it is believed, when shrewd financiers, interested in the vast opportunities of the paper-making industry, will see the wisdom of establishing plants in the South.

Elsewhere in this issue, news stories and cuts, together with an authentic article by Dr. Herty himself, graphically portray how the Morning News and other Georgia dailies were enabled to print their issues today on the Georgia-grown product. Costs of production are shown and the manner in which the raw product was shipped to Canada and there transformed into newsprint is told very interestingly. It is hoped that there may be much of real educational value derived in this and other states and that this will hasten the development of the papermaking industry, with its almost inestimable possibilities in the South.

From *Albany Herald*, Nov. 20, 1933.

### **We Print this Edition on Paper that Grew in Georgia**

This edition of The Herald is printed on paper out of the ordinary. It is paper made entirely from pulp produced in Georgia from Georgia pine trees.

Other daily newspapers in Georgia are doing today what The Herald is doing—printing their entire edition on paper made from Georgia-pine

pulp. The trees grew in Georgia, the pulp was made in the experimental plant at Savannah which Dr. Charles H. Herty has been directing for several years. The experiment was made for the purpose of demonstrating the suitability of paper made from Georgia-pine pulp for standard presses, and to demonstrate also the ability of the pulp to "measure up to requirement" in the modern paper mill.

This is written before the paper goes to press, but it is not doubted that the paper will not be found wanting. Dr. Herty has full confidence in it. So have the engineers and chemists who have been assisting him in his experiments. So have the paper mill people. And so have we.

Frankly, we have faith in the paper because we have great faith in the man who stands behind it. Georgia already owes a great debt to this son of hers, and we do not doubt that the debt will be materially increased as the experiments he has been conducting are continued.

Dr. Herty has faced enough opposition and indifference to discourage the average man, which is just one way of saying he is not an average man. He certainly isn't. Combined in him are the qualities of the crusader and the practical scientist, but they seem to be combined in just the right proportion. The last Georgia Legislature voted an appropriation to enable Dr. Herty to carry on in his Savannah laboratory the ex-

periments which had begun so hopefully, but Governor Talmadge vetoed the bill. Savannah stepped into the breach most helpfully, and more recently The Chemical Foundation, Inc., appreciative of the fine progress Dr. Herty had made, came forward with guarantees of financial support which insure continuation of the experiments for two, and if need be three, years.

Just what is it that Dr. Herty is doing? He is opening the way—preparing the ground—for a great Southern industry. He is proving the practicability of the impossible—rather, what so-called experts had called the impossible, namely, demonstrating that this section of the country can supply enormous quantities of second growth pine for the manufacture of paper pulp; that pine pulp will produce a grade of paper fully up to the best standards established in this and other countries, and that the industry, by utilizing millions of acres now lying idle, can be made one of great profit to the whole Southeast.

One of the most remarkable things Dr. Herty has demonstrated, and which it has been extremely difficult for the paper pulp industry as a whole to believe, is that young pine trees suitable for the manufacture of pulp can be grown in from eight to twelve years, with the average somewhere near ten years. This is a third, or less than a third, of the time required to grow the timber from which Northern pulp is produced. The

demonstration opens up a fine field for the development of a great Southern industry, and justifies the faith of the men who are backing Dr. Herty, and of Dr. Herty himself.

We make confident prediction that the time will come when not only will newspapers printed in this section of the country be printed on paper made from pine pulp, but that mills will be erected in the South to utilize the product, and Georgia paper will be shipped to the very sections from which newsprint is now received. We have the land, we have the sunshine, we have the long growing seasons, and we have the man who will finish the enterprise which has made such fine progress under his direction.

*From Brunswick News, Nov. 20, 1933.*

### **A Great Achievement**

Another milestone in the success of the manufacture of high grade newsprint paper from Georgia pine has been reached today as nine Georgia daily newspapers produce their issues on paper produced by a Canadian plant from pulp taken from Georgia pines and brings one step nearer reality the long years of visions of the entrance of that industry into the commercial life of Georgia.

The newsprint upon which this paper is printed is a product of the piney woods of south Georgia

and is the result of the research and experiments conducted over a period of several years by Dr. Charles H. Herty, native Georgian and internationally known research chemist, who is greatly responsible for conceiving the idea of turning Georgia pine pulp into paper.

While the printing of the Georgia dailies on paper from pine pulp today is looked upon as an experiment, it is an already conceded fact among the experts that the manufacture of paper from Georgia pine is a success. With the publication of the participating dailies in this venture today there has come further proof of the feasibility and the possibilities of production of pine paper for commercial purposes.

The success recorded today with pine paper might lead to great things for Georgia from an industrial and commercial standpoint. The great mills of Canada have pronounced the paper as ideal and perfect in every respect and was taken through the various processes of manufacture without encountering any obstacles or difficulties. With ideal working conditions, plentiful labor, lower freight rates and vast tracts for construction of industrial plants there is in all probability a great future in the south for the paper industry.

The manufacture of paper from Georgia pine has passed the experiment stage and has entered the category of reality. Through the cooperation

of a Canadian paper manufacturing plant, south Georgia timber men and naval stores operators, the railroads, the Herty experiment station at Savannah and the nine participating Georgia dailies the accomplishment today has been made possible. It reveals the vast strides which have been made during the past several years and just what the future holds for the piney woods sections of the south.

The entrance of the production of newsprint paper from Georgia pine pulp into the manufacturing world will probably mean millions of dollars to the southern states, where the pine is most prolific and especially in this section of Georgia where there are millions of acres of pines suitable for the production of pulp for newsprint paper.

To Dr. Charles H. Herty there are hardly words sufficient to properly praise him for his contributions to the industrial world and the south. He has expended his own personal resources, has devoted his time, his energy and his chemical knowledge to the accomplishment of a plan which he believed was possible. Georgia is proud of him as a native Georgian and one who has offered this state an opportunity to enter a new industrial era.

And so today marks another chapter in the history of manufacture of newsprint paper from Georgia pine pulp and the success encountered by the nine Georgia dailies is conclusive proof of what can be accomplished on a vast scale.



**Printed in U. S. A. February, 1934.**

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**“Aid slighted truth, with thy persuasive strain  
Teach erring man to spurn the rage of gain; .  
Teach him that states of native strength possess,  
Tho’ very poor, may still be very blest;  
That trade’s proud empire hastes to swift decay,  
As ocean sweeps the labour’d mole away;  
*While self dependent power can time defy,  
As rocks resist the billows and the sky.”***

**Goldsmith—“*The Deserted Village.*”**

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BULLETIN L.

AN INDIAN SCHEME OF  
RURAL RECONSTRUCTION  
ADULT EDUCATION IN THE  
INDIAN Y.M.C.A.

THE VIENNA MEETING

ETC.



THE WORLD ASSOCIATION  
FOR ADULT EDUCATION,  
16, RUSSELL SQUARE,  
LONDON, W.C.1.

NOVEMBER, 1931.  
PRICE ONE SHILLING

## AN INDIAN SCHEME OF RURAL RECONSTRUCTION\*

**T**HE Devadhar Malabar Reconstruction Trust submitted to Government some time back a scheme of rural reconstruction giving special importance to Adult Education through Night Schools, Magic Lantern Lectures, Reading Rooms, Libraries, Leaflets, Exhibitions, Meetings, etc. The Trust undertook to work the scheme in select centres provided the Government agreed to meet the major portion of the expenditure. The Government have been pleased to accept the scheme and to sanction half of the recurring as well as non-recurring expenses.

The one difficulty which the Trust had to face at the very outset in the inauguration of the scheme was the paucity of properly equipped workers to take charge of the centres. It had been found from past experience that the ordinary teachers trained in the training schools are not competent to undertake rural welfare work which demands a practical knowledge of Adult Education, Agriculture, Medical Relief, Co-operation and other subjects which are vitally connected with rural reconstruction. If the worker in charge of a welfare centre is to be of real help to the village population he should be capable of giving them advice on all important matters. After selecting workers in consultation with the District Educational Officer, South Malabar, to equip them to discharge their duties properly, the Trust sought the help of different departments of Government to give them a special course of training. A scheme of studies specially prepared by the Trust and approved by the District Educational Officer, South Malabar, was adopted for the

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\* A report submitted to the Government by the Devadhar Malabar Reconstruction Trust, kindly supplied by Mr. R. Suryanarayana Rao.

**NOTE.**—The Council desire to state that, while every care is taken to secure complete and accurate presentment in the articles in **THE BULLETIN**, they obviously cannot vouch in every instance for the correctness or adequacy of the statements contained therein. Publication of an article or report in **THE BULLETIN** must not be interpreted as necessarily carrying with it the endorsement of the Council. This specially must be the case when views or opinions are expressed. Any reader who has special knowledge of the subject dealt with and can send additional information, or corrections of statements made, is asked to do so.

purpose. Instruction was given to workers in Agriculture by the Agricultural Demonstrator, methods of educating the adults were explained by those who had experience in the line, first lessons were given by a qualified doctor who took the workers to the hospital and made them actually dress wounds, fractures, etc. The Co-operative Inspector explained the method of starting and conducting co-operative societies, the Assistant District Health Officer dealt with Health and Sanitation. Such a practical course although short in duration, being only for a period of one month, gave much confidence to the workers to go to the villages and start welfare work. On the date of the completion of the training the District Educational Officers of South and North Malabar, the District Health Officer and the Trustees gave sound advice to the workers as to how they should behave towards the villagers and wished them success in their endeavours.

#### SELECTION OF CENTRES.

The work according to the scheme actually began on the 16th June, 1930. Feroke, Kottakkal, Tirurangadi, Tirur, and Mangattri were the five centres selected in consultation with the District Educational Officer. In selecting these centres the Trust has kept in view the places where illiteracy and poverty prevail to the greatest extent, and where ignorance and superstition have caused great havoc. Tirur, Tirurangady and Kottakkal were storm centres during the late Moplah Rebellion and where 90 per cent. of the adult Moplahs are still illiterate. Feroke is a place full of factories in which nearly 6,000 labourers are working and 80 per cent. of them are illiterate. At Mangattri a large number of people belong to the depressed classes and they are illiterate and poor.

#### VILLAGE SURVEY.

The workers were sent to their respective centres on 16th June, 1930. Till the end of the month they were engaged in making a thorough survey of their centres, by coming into contact with people and by taking statistics about illiteracy, poverty, etc. This survey helped the workers to know the condition of the villages and pointed out to them the direction in which they are to work for the uplift of the village.

#### ADULT CLASSES.

As buildings were not available in the centres, permission had to be secured from the Taluk Boards of Pennani and Ernad to

use their buildings to hold the Adult Education Classes. At Tirur and Feroke the Trust had to hire buildings on rent while in the other three centres the Board School buildings have been found convenient and they have been kindly placed at the disposal of the Trust. Adult Education Classes were opened at Feroke, Tirur and Kottakkal during the first week of July, at Tirurangadi during the second week and at Mangattri during the third week of July. The strength of students in each centre stood as follows on the opening day :—

Feroke	..	..	..	..	..	4
Tirur	..	..	..	..	..	60
Kottakkal	..	..	..	..	..	61
Tirurangady	..	..	..	..	..	45
Mangattri	..	..	..	..	..	59

The pupils were mostly day labourers who were quite illiterate when they joined the classes. Their presence in the class for one or two hours in the night enabled them to forget the rigours of the day's hard work and gave them opportunity for recreation and to gather useful knowledge. The methods of instruction and the curriculum of studies adopted in the classes were conducive to create an intelligent interest in the adult about the everyday happenings in his surroundings, to widen his outlook, and to make him a better citizen. The classes usually began at 7.30 p.m. As most of the students are labourers who often return to their homes late in the evening, it is found difficult to enforce a particular time. Generally by 8 p.m. all the students assemble and they sit till 10 p.m. Prayer is the first item, and Tagore's famous songs *Janaganamam* have been adopted for the purpose. The students are treated in the class with great sympathy and consideration to make them feel quite at home. Stories that strike their imagination and sustain their interest are narrated. Magic Lantern lectures on different subjects are given regularly which, while imparting knowledge to them, provide recreation as well. Many of the students who come quite illiterate have been able to read and write down the lessons of the Infant and First Readers within the course of the year, despite their irregularity in attendance. They have also secured elementary knowledge of Civics, Geography, Health and Sanitation, Co-operation, etc. Music and Mental Arithmetic have been given a prominent place in the curriculum because they help to make the students cheerful and alert.

As there was only one worker in each centre it was found difficult to manage the classes which contained a large number of students of different ages and attainments. When the students who number above 50 in each centre found that the teacher was not able to interest them and bestow particular attention on them, they became indifferent and finally gave the slip. So the strength of the centre decreased considerably, as is seen below from the record of December:—

Feroke	..	..	..	..	..	48
Tirur	..	..	..	..	..	37
Kottakkal	..	..	..	..	..	52
Tirurangady	..	..	..	..	..	28
Mangattri	..	..	..	..	..	44

Another cause for the fall in the strength and attendance of the centres was the Christmas vacation. It has been found from experience that the adult forgets all about his school during a vacation, and the habit formed of attending the class once abandoned is scarcely resumed. After reopening the attendance in all the centres became poor, and the strength was cut down as follows in March:—

Feroke	..	..	..	..	..	41
Tirur	..	..	..	..	..	32
Kottakkal	..	..	..	..	..	46
Tirurangady	..	..	..	..	..	28
Mangattri	..	..	..	..	..	36

From the experience gathered after working the centres for nearly a year the following conclusions have been arrived at:—

- (1) The single teacher system is bad.
- (2) There should be a teacher at least for every twenty adults.
- (3) Instruction should be as attractive as possible to sustain the interest of the adult.
- (4) Long vacation should be avoided.

It may also be stated that the widespread economic depression which had been the distressing feature of the year might also have stood in the way of increase of strength in the adult classes. Taking into account all the existing factors in villages, and knowing how difficult it is for new ideas and new ways of work to take root in villages, the attendance at these centres may on the whole be considered fairly satisfactory.

## READING ROOMS.

Reading rooms have been opened in all centres. The following papers and magazines approved by the District Educational Officer, South Malabar, have been made available for the use of the reading public :—

1. *The Aikyam* (Malayalam weekly).
2. *The Manorama* (bi-weekly).
3. *Deepam* (Malayalam monthly).
4. *Lakshmi Bai* (Malayalam monthly).
5. *Malayala Masika* (Malayalam monthly).
6. *The Hindu Illustrated Weekly* (English).
7. *The Servant of India* (English weekly).

The students of the Adult Education Centres and the public, especially those who are poor, have been regularly making use of these reading rooms. There have been no free reading rooms in any of these places, and consequently the public have welcomed the opportunity afforded by the Trust to read newspapers and periodicals. On an average 15 to 20 people have been visiting the reading rooms regularly in each centre. The help rendered by the Trust has been appreciated by the public so much that in some centres local gentlemen have placed their papers in the reading room to supplement the contribution of the Trust. The want of a vernacular daily paper has been keenly felt in the centres, and the Trust has made arrangements to supply the same. Readings from newspapers and magazines are given to the adult pupils of the centre; the pupils are also encouraged to read them.

## LIBRARY.

A small library, consisting of nearly 100 books selected from the list published by the Madras Library Association and approved by the District Educational Officer, has been organised in each centre. This library has helped to create taste for literature among the adults. It may appear somewhat strange if it is stated that there are not many literary works available dealing with general subjects for the use of all communities. Considerable difficulty was felt in the choice of books, as most of the available books dealt with subjects of Hindu mythology. To the Moplah anything even remotely connected with Hinduism is anathema, and he at once suspects that we are the emissaries of a proselytising agency like the *Arya Samaj*.



## LECTURES.

### (a) GENERAL.

The importance of lectures in the Adult Education scheme has been recognised by the Trust, and large numbers of lectures on different subjects useful to villagers have been delivered in each centre. The presence of the officers of different departments of Government and leading public men has been availed of to arrange for lectures. These were some of the subjects on which lectures were delivered; (1) Social Service; (2) Rural Reconstruction; (3) The Life and Service of Gopalakrishna Gokhale; (4) Untouchability; (5) The Evils of Drink; (6) Co-operation and Thrift; (7) Adult Education; (8) Universal Brotherhood. These lectures were attended not only by the students of the adult education classes but also by the public as well. On the occasion of the anniversary of the death of Gopalakrishna Gokhale a small brochure dealing with the main aspects of his life and work was published, and copies of the same were freely distributed in the villages on the occasion of the anniversary, which was celebrated in all centres in a fitting manner.

### (b) MAGIC LANTERN LECTURES.

In addition to the workers stationed in each centre, the Trust has appointed an itinerant lecturer who goes round to all centres to deliver magic lantern and general lectures on subjects relating to Rural Welfare. The Trust has purchased the following sets of slides:—

1. Health and Sanitation .. .. .	40	slides.
2. Maternity and Child Welfare .. .. .	73	”
3. Rebuilding of Village India. . VI Parts ..	105	”
4. Rambles round the London Zoo .. .. .	80	”
5. Rural Reconstruction .. .. .	40	”
6. Boy Scouts .. .. .	24	”
7. Conquests of the Air .. .. .	24	”
8. <i>Uncle Tom's Cabin</i> .. .. .	24	”
9. <i>Haridasi</i> (Temperance Story) .. .. .	31	”
10. Temperance—Part I .. .. .	24	”
11. Temperance—Part II .. .. .	24	”
12. Thrift .. .. .	40	”
13. Agriculture .. .. .	30	”
14. Co-operation and Evils of Drink .. .. .	40	”
15. Co-operative Credit .. .. .	40	”
16. Co-operative Store .. .. .	40	”

On the whole, 83 magic lantern lectures were delivered in all centres during the period under report. These lectures were mostly conducted in open air and attended by people ranging from 100 to 300. Special shows were arranged for women, and lectures were delivered on such subjects as Maternity and Child Welfare. Illiterate and poor Moplah women have been much benefited by these shows, as they do not come out usually during the day-time to attend any lecture. It is a glaring fact that, owing to the ignorance of mothers and want of trained *dhais*, infant mortality is appalling in villages. The slides on Maternity and Child Welfare invited the attention of the village women to this aspect, and helped to give them elementary knowledge about the nursing of children and maternal responsibilities.

#### WELFARE WORK.

(a) Medical Relief. During the day the worker in each centre has been interesting himself in Rural Welfare Work. The Trust has attached special importance to Medical Relief in its scheme of Rural Reconstruction. The intention of the Trust was to provide each centre with a medicine chest, but as there are rural dispensaries in all the centres, the need of the chest has not been found very urgent. It is a matter for deep regret that the existence of these dispensaries is not taken advantage of by the villagers. The "Seek," as the dispensary is called, is shunned by many. The tendency is to prefer the aid of a sorcerer to that of the doctor. The workers of the Trust had to experience considerable difficulty to prompt and persuade the suffering villager to enter the gates of the dispensary. By steady efforts they have been able to send to the dispensaries a large number of patients suffering from tuberculosis, fever, itches and hook-worm, etc. When smallpox broke out recently in Kottakkal, the worker stationed there acted promptly and checked its spread with the help of the Health Department. More than 200 people were vaccinated through his efforts. Similarly, when cholera broke out in Tirurangady, the worker of the Trust wired to the Health Officer, distributed disinfectants, and got nearly 300 people inoculated. Such prompt action has won the confidence of the villagers, who remark with feelings of gratitude and joy that, but for the help of the Trust, the epidemic would have spread and caused great havoc. The machinery of the village administration moves very slowly, and it is rarely that the villagers get any relief from it. So it is no wonder that they feel grateful towards the Trust for its ready and unstinted help.

## HEALTH AND SANITATION PROPAGANDA.

To improve the health and sanitation of the villages, the worker has been visiting houses and shops to give instructions to their owners to keep them and their surroundings clean. During the month of November last, the Health Week was celebrated in all centres. The special feature of the celebration was the formation of local committees to secure local support and co-operation to create interest in the local public. Several important items, like Baby Shows, Village Sports, Magic Lantern Shows, Sanitary Rounds, etc., were included in the programme of the week, and the attention of the villagers was drawn to the most unsatisfactory condition of rural health and sanitation and the remedies to be adopted to improve them. The total amount collected and spent in all centres was nearly Rs. 500. The number of Baby Shows held were five, fifteen Magic Lantern Lectures, and twenty-one general lectures on health topics were delivered during the week, and the total number of people who attended the shows and lectures approximated nearly 8,000. The workers of the Trust acted as secretaries or executive agents in all centres, and their efforts have been appreciated by the public. Instead of becoming a mere show and *tamasha*, the Health Week was made to serve the real purpose for which it is meant. The local committees formed for the week are to serve as the nuclei of health and sanitary associations. It is proposed to carry on intensive work throughout the year. In a work of this nature local effort and co-operation are absolutely essential.

## CO-OPERATION.

The attention of the workers in the different centres had been directed to rectify the Co-operative Societies and to create a healthy spirit of co-operation among the villagers. The societies as they existed were in a very unsatisfactory condition. As a result of the irresponsibility of the *Panchayatdars*, overdues had gone high, loans had become time-barred, and members had grown indifferent. The Trust realised that unless and until the Co-operative Societies were rectified and developed welfare work in villages would not succeed. So the itinerant lecturer of the Trust was advised to take up the secretaryship of the Tirur Union, which consisted of 26 societies, most of which were in a bad condition. With the co-operation of the Department, he has been trying to rectify the Societies. Most of the *Panchayats*

have been reconstituted, overdues have been collected to a great extent, many general body meetings have been held at which the principles and advantages of co-operation were explained to the members by means of general lectures and magic lantern shows. This propaganda has been helpful in creating an awakening in the societies which had been in a morbid condition for a long time. To educate the *Panchayatdars* of societies, arrangements have been made to hold at Tirur a *Panchayat* Conference, in April, the first of its kind in the area. An interesting programme has been arranged. Exhibitions, lectures, etc., on co-operation, health, agriculture and other subjects affecting the villagers will be conducted, and the special feature of the function will be a farce which depicts in realistic and appealing manner the causes that led to the decay of the Societies and the efforts to be made to revive them. The Conference will enable the co-operators to discuss their common problems. Our worker at Kottakkal has been elected a *Panchayatdar* of the local Society, and he is doing his best to improve the condition of the Society. In each centre a Savings Society has been organised for the adult pupils in order to encourage the habit of thrift. The worker at Feroke is trying to rectify the Societies for the Adi-dravidas in and around Feroke.

#### AGRICULTURE.

The workers have been doing their best to spread the knowledge of the improved methods of agriculture in the villages. They have been advising the villagers to conserve the manure, to use better seeds and implements and to take good care of their cattle. The officers of the Agricultural Department have been kind enough to render all assistance to the workers. A large number of compost manure pits have been dug in the compounds of agriculturists. The workers go round with the Agricultural Demonstrators when they visit the villages and render every assistance to them in their propaganda. It was the idea of the Trust to open a Demonstration Farm in each centre. This has not been possible till now owing to the difficulty of securing suitable lands for the purpose. However, compost manure pits have been dug in compounds of our centres.

#### ELEVATION OF THE DEPRESSED CLASSES.

The problem of the Depressed Classes has been receiving the special attention of the Trust, and no efforts have been spared to educate and improve the status of the backward classes. The

workers have been visiting the *Panchama* quarters regularly and instructing the *panchamas* about sanitation, health, etc. The adults have been persuaded to attend the night classes held in the centre. The worker at Feroke has been appointed as an Honorary Visitor of the Labour Schools in the area. By constant visits he has improved the condition of the schools. As already stated, he has also been trying to improve the Labour Co-operative Societies in the area, most of which have been in a very unsatisfactory condition. Several meetings of the Adi-dravidas have been held and lectures and magic lantern shows and *Bhajanas* have been conducted to educate them about co-operation, health, temperance and sanitation. A farce dealing with social evils was enacted in some centres, and it attracted large crowds of people, specially *Panchamas* and other labouring classes.

#### TEMPERANCE.

The workers have been doing propaganda against drink by holding meetings and lantern shows, by distributing leaflets and by enacting a Temperance Farce. It should be mentioned that the adult education centre itself is a counter-attraction, as the interesting course of instruction provided there weans many an adult from the toddy shop.

#### ADVISORY COMMITTEES.

In order to associate the public of the place in which the Adult Education Centres have been started, local advisory committees have been organised. These committees have met occasionally and have discussed the problems of adult education and rural welfare, and have been rendering every help to the workers in charge of the centres and make their task easy.

#### CONCLUSION.

Response so far has not been discouraging. But it is too early definitely to judge of the results of the work and the methods used, although certain tentative conclusions can be drawn and certain doubts expressed as to the efficacy of some of the methods adopted. The process of reconstruction is necessarily slow, as the process of decay has been going on for the last so many centuries. The presence of a trained worker who is always ready to help in all possible ways and identify himself with the villagers, must necessarily make the villagers feel that there is somebody

on whom they can rely as a friend, philosopher and guide. He is a connecting link between the villagers and the different Departments of Government, and his only ambition in life is to work for the social and economic betterment of the community. Civic consciousness of the community has to be roused. His task is very difficult and he is new to the kind of work in which he is engaged. Slowly he is getting used to the work and is entering into the spirit of it. The Trust hopes to achieve something to bring a ray of hope and cheer into lives that sadly need it, with the co-operation of the public officials, whose help we gratefully acknowledge. Our indebtedness to many helpers is very great. The only way in which we can express our gratitude to them is to serve the community undaunted by the difficulties that beset this path of rural reconstruction.

## ADULT EDUCATION IN THE INDIAN Y.M.C.A.

**F**ROM the very beginning of its existence the Young Men's Christian Association has taken a special interest in Adult Education, and educational activities have occupied an important place in its programme. In the Jubilee Survey for the whole world published in 1894 the following summary of its educational activities appears :—

Libraries, University Extension Lectures, Art, Science and Civil Service Classes. Reading Rooms. Musical Instruction. Literary and Debating Societies. Technical and Commercial Classes. Scientific and Illustrated Lectures. Classes for Study of Classical and Foreign Languages, History, Geography, etc.

In Great Britain in 1923 at a Conference of the British Y.M.C.A.'s, the Association was urged to recognise " the significance or importance of the Adult Education Movement and the responsibility of the Association to that which the Movement seeks to achieve."

In India it has always been recognised that the Association should do all that it could to promote adult education among its members and also among young men generally, and formerly the Y.M.C.A. was the only organised Movement which carried a programme of Adult Education for young men.

The following are the general lines of its Adult Education Programme at the present time :—

(1) GENERAL LECTURES.

(a) Regular courses of lectures on Religion, History, Philosophy, Economics, Art, Travel, Social Service, Science, etc.

(b) Occasional Lectures, once or twice a week, on such subjects.

(c) Lantern Lectures on various subjects.

These are given in all Branches of the Y.M.C.A. and are a regular feature of the programme. They are usually open to all without payment.

(2) VOCATIONAL EDUCATION by means of regular classes in Commercial Subjects, Engineering, Electricity, Foreign Languages, etc. These run for special periods, and a fee is charged for the course.

Lahore, Calcutta, Colombo, Coimbatore, Madura, Rangoon and Madras are among the Associations with such classes.

At 86, College Street, Calcutta, regular courses in Social Service Work and in Physical Education are held.

The Colombo Association has classes in Elocution and Modern Philosophy also.

Rangoon has had a special course on Efficiency.

Lahore has a class on Drawing in addition to the other regular commercial subjects.

The fees vary from R.1 to R.9 a month, according to the subject and the place.

Some of the centres have been recognised by the London Chamber of Commerce for the Examinations.

(3) STUDY AND DISCUSSION GROUPS.

These are held in every Association on various subjects, generally Religious or Philosophical. The subjects of these groups also include the following: International Relations, The League of Nations, The Communal Problem, etc.

(4) NIGHT SCHOOLS.

Some of them are for illiterates and in the Industrial Welfare and Rural Reconstruction Centres.

Others are for those whose education has only proceeded to a low standard.

The teachers are both voluntary and paid.

A special set of slides on Tamil has been prepared with the object of teaching numbers of illiterates to read in the shortest possible time. It has been found that they can be taught to read Tamil by this method in two months.

**(5) LIBRARIES.**

Most large Y.M.C.A.'s have a fairly good library which is well used. Some of the secretaries make a point of helping the members through special guidance. Important new books are especially noticed and commented on. In the Rural Reconstruction areas village libraries have been opened and Travelling Libraries organised.

**(6) UNIVERSITY EXTENSION COURSES.**

In a few centres attempts have been made to provide courses of lectures on History, Economics, etc., as a means of promoting University culture among those who have not had the opportunity of attending a University. Sometimes a small payment is made so as to provide the expenses of the lectures.

Madras organised a special University Course of this character, with Examinations and certificates.

**(7) LANTERN LECTURES AND VISUAL INSTRUCTION DEPARTMENT.**

The National Council, Y.M.C.A. has a special Lantern Lecture and Visual Instruction Department. The following is a summary of its work :—

The Department sends out lantern slides on hire on various subjects such as Temperance, Health, Geography and Travel, Uplift Work, Maternity and Child Welfare. They also endeavour to serve through the production of slides on various subjects as indicated by those wishing to have slides made for them. In a country possessing such a large illiterate population, visual instruction has a great scope. Last year the Lantern Lecture and Visual Instruction Service reached more than 10 lakhs of people, the majority of whom were illiterates. The facilities for this service consists of a fully equipped laboratory for the production of lantern slides, a limited supply of lanterns and various accessories for those who are in need of them. A library of some 60,000 lantern slides for hire on a nominal fee of R.2 per week per set is also maintained. The staff is always ready to assist anyone in planning a programme of Visual Instruction.

A series of lantern slides have been produced for teaching illiterates to read and write simple Tamil. From the Pudukottai State it has been reported that by the use of these slides they were able to teach a group of adult illiterates so that they could read and write simple Tamil in about eight weeks. More recently, a series of slides has been prepared on Village Reconstruction showing something of the work in Girgaum, Jhelum and other places where Village Reconstruction has been undertaken success-



fully. There are eight parts to this set with 141 slides, many of which are beautifully hand-coloured. The cinema has of late years stimulated the use of lantern slides even more largely than it displaced them at the outset of "movie" popularity.

#### REPORTS FROM THE CONSTITUENT ASSOCIATIONS

For the purpose of collecting data with regard to the work undertaken by the various bodies constituting the Indian National Council of Y.M.C.A.'s, the following questionnaire was circulated :

1. What adult education are you attempting in the Y.M.C.A. ?
2. Is it in the form of regular classes or general lectures ?
3. What is the average number of students or people attending ?
4. Is any payment required from the students apart from the general Association subscription ?
5. What are the subjects which you are attempting in Adult Education ?
6. Are you conducting any Night Schools—if so, whom are they intended for, and what is their general nature ?
7. How much of your Adult Education Work is meant for illiterates with the object of removing illiteracy ?
8. Any other matter of interest connected with the subject.

The replies received are appended :

#### CALCUTTA Y.M.C.A.

Courses of lectures in the following subjects in College Street Branch with a total attendance of 16,793 in 1929.

1. First Aid.
2. Home Nursing.
3. Home Hygiene.
4. Sanitation.
5. Civics.
6. Music (Indian and Western).
7. Typewriting, Shorthand and Accounting.
8. French and German.

The Wellington Branch has a Shakespeare Society, which meets once a month for a regular study. All the libraries lent out 28,362 books during the year 1929.

#### BOMBAY Y.M.C.A.

The Adult Education conducted by the Bombay Y.M.C.A. may be classed under two heads :—

1. Lectures in the Branches for literates.
2. Night Schools, lectures, etc., in our Social Welfare Work for illiterates.

#### I.—LECTURES IN BRANCHES

There is no regular programme of lectures arranged, but as suitable lecturers are available their services are secured, and as a particular need arises lectures are arranged. The subjects covered are : Travel, Places of Interest, Electrical Engineering, and subjects of general interest.

#### II.—NIGHT SCHOOLS AND LECTURES FOR ILLITERATES.

In our eight Welfare Centres, night schools for illiterates are conducted regularly. The students compose employees of mills, Port Trust, municipality and railways.

Classes in Marathi, Cujarathi, Urdu and English are conducted, and the total number on the roll is 375. The average daily attendance is 220.

There is no payment required from the students.

At irregular intervals lectures are given on Sanitation, Co operation, Temperance, Evils of Gambling, Hygiene, Thrift and subjects of general interest. Demonstrations and Exhibitions on the Care of Infants, Venereal Diseases, Proper Care of Food, etc., have been arranged.

#### COLOMBO Y.M.C.A.

1. We are attempting adult education through popular lectures, meetings, literary clubs and the library.
2. We have regular classes as well as general lectures.
3. The average attendance at lectures has been about 100. The average attendance at classes would be about 50 per week.
4. We are charging tuition fees as follows :—

German .. ..	Rs.30	for 6 months
French .. ..	25	" 6 "
Sinhalese .. ..	5	" 6 "
Tamil .. ..	5	" 6 "
Elocution .. ..	5	" 5 "
Modern Philosophy	10	" 6 "

We have had some classes in economics and history for which we have not made a special charge.

5. We are not conducting any night schools.
6. None of our adult education work is meant for illiterates.

## Y.M.C.A. NAGPUR—INDUSTRIAL WELFARE CENTRE

### INTRODUCTION :

The title "Adult Education" is rather a vague one. It may mean efforts to remove illiteracy from the grown-ups or it may mean the system of education to enlarge the outlook of the adults and to enlighten their minds with a view to making them better citizens. We are attempting both of these.

1. (a) Night Schools with a special curriculum, the emphasis being on the three R's. Those attending usually vary in age from 12 to 20.

1. (b) A programme of special classes, debates, discussions, lectures, etc.

2. Both.

3. Average numbers of attendance will be found in the attached statement.

4. No, the students do not pay any fees or subscriptions.

5. Please see the note.

6. See paragraph 3 of the statement.

7. It is difficult to say how much but, generally speaking, I would say that regular night classes are for the adolescent group and the other programme for people beyond the age of 20.

8. To my mind the only way of doing effective work with adults is to have a real live worker to conduct the group. All kinds of subjects can be dealt with and interest sustained provided the teacher is keen about the job. It is very difficult to evaluate the results of this effort as the effect and influence of such classes cannot be measured in terms of examinations, but must find their scope in the lives of those who attend.

The Y.M.C.A. Welfare Work in Nagpur has been carrying on Adult Education in different forms. Various methods are being adopted to suit the conditions and requirements of the Industrial Workers. Though the number attending these adult classes has not been very large, yet it is gratifying to note that there are a considerable number of young labourers who fully take advantage of the opportunity of education afforded to them in this way. In this connection it must be remembered that it is absolutely futile to expect men over 25 to attend any of these classes regularly. At the same time a regular programme is being carried on to impart knowledge to men who are unable to attend our regular night classes.

Following are some of the methods which are being introduced in our Welfare Work to educate the young and old :

## LANTERN LECTURES AND LECTURES.

For men who are unable to attend our classes regularly, and for those who are advanced in age, knowledge is imparted by means of (a) Lantern Lectures, (b) Debates, and (c) by disseminating current news from time to time.

Some of the topics selected for the Lantern Lectures and *Basti* Lectures are as follows:—Honour Thy Elders, Village Customs, Health, Necessity of Literacy, Effect of Alcohol on Human Body, Malaria, Plague, Infectious Diseases and How to Avoid Them, Our Diet, Community Uplift, The Efficiency of Labour, etc. The numbers attending these lectures vary according to the population of the *basti* (or village). They are between 50 and 300 at a time.

These lectures are generally given by secretaries and supervisors in charge of our various centres, and occasionally members of the public who are interested in this kind of work are invited to help us.

2. ENGLISH CLASS.—For those who have gone through the Primary Vernacular Course, we have started an English class. In this class we not only teach them English but also a course in their vernacular is conducted. There are 47 adults in this class and the average daily attendance has been 32.

Keen interest is evidenced by the mill labourers who have been attending this class, and they are very eager to learn English.

3. NIGHT SCHOOLS.—In two of our centres we have regular night classes held for labourers working in the mills. First the three R's are taught in these night schools, and the full course extends to three years. A special curriculum is prepared to suit the mental capacities of labourers. We have in these night schools 107 pupils on the roll, and the average daily attendance has been 56.

4. LITERARY CLASSES.—In smaller *basties* where we are unable to get an adequate number of men to open a night school, only one class is held for labourers who are anxious to learn. We have five such Literary Classes in our Welfare Work Centres. The daily attendance has been 61 out of a total of 82 on the roll.

5. ADULT EDUCATION GROUPS.—These classes are held regularly in two of our centres once a week. The subjects are selected on the advice of the group. These groups are generally conducted by secretaries in charge of the centres. This method of reaching the older people in small groups has proved very satis-

factory, and a certain amount of keenness is evinced by the workpeople in this matter. The attendance in these groups varies from 12 to 35. No roll call is taken. Some of the subjects taken up in these groups are—viz., Infant Welfare, How to Keep Fit, Trade Disputes, Labour Commission, Principles of Industrial Welfare, Postal System, and Dominion Status.

The following table gives the figures of enrolment, attendance, etc., at our Centres :—

	Centres.	Average daily attendance	Full- timers	Half- timers
<b>Night Schools—</b>				
1. Infura ..	45	24	26	19
2. Gaddigodam	62	32	53	9
<b>Literary Classes—</b>				
1. Bhankheda ..	17	15	17	—
2. Sitabaldi ..	16	6	14	2
3. Khadan ..	15	9	15	—
4. Shukravari ..	16	14	14	2
5. Imambada ..	18	17	15	3
<b>Central English Class</b>				
1. Noonday ..	47	32	47	—
<b>Totals ..</b>	<b>236</b>	<b>149</b>	<b>201</b>	<b>35</b>

#### MADURA Y.M.C.A.

1 and 2. All our adult education is done through the regular Saturday lectures, as well as the two night schools run at Kremmerpuram and West Gate under the management of the Association. Every quarter there is a study circle on some subject as International Relations or Comparative Religion, conducted by one of the leading men in the city.

3. The average number of people attending our lectures is a little over 100; our Night Schools have a staff of 10 teachers and 160 pupils. The study circle is attended by about 20 men every Tuesday.

4. No payment is required from the students apart from the general subscription.

5. The subjects dealt with are : Comparative Religion, International Relations and most of the Current Problems of the Present Day.

6. We do conduct Night Schools. They are intended to educate the mill-hands in the cotton mills and poor *cherias* as well as to train Elementary Teachers.

7. Only the Night School helps to remove illiteracy.

In addition to the above work we carry on every year a series of lectures called the College Extension Course with a view to helping the students of Madura American and Tutorial Colleges as well as private students appearing for the University Examinations.

Our attempts at Adult Education are limited for more than one reason: lack of space in the Association building such as a separate room for this purpose; secondly lack of intellectual leadership in the city, which is a great handicap in extending the Adult Education into other Departments of Life.

#### LAHORE Y.M.C.A.

1. Regular evening classes and lectures.

2. Both.

3. Classes: 165 average daily attendance; 200 persons per lecture.

4. Class students have to pay monthly tuition fee of Rs. 7 per month.

5. Shorthand, Typewriting, Bookkeeping, Commercial Correspondence, English, Mathematics and Drawing. Lectures are delivered on a variety of subjects.

6. Yes. (a) For employed men who wish to improve their future prospects, (b) and for non-employed men who wish to acquire professional training.

7. None.

#### RANGOON Y.M.C.A.

1. A series of lectures has been given. Average attendance 150.

2. A course of 4 lectures on Efficiency has been given to a group of 12 who paid R.1 each for the course.

3. A Night School is conducted for poor Indian boys throughout the year. About 30 participate.

4. Lectures have been given in the Central Jail on various subjects, and mass meetings for labourers have been held at the mills, when addresses have been given on Religious and Health subjects.

## COIMBATORE Y.M.C.A.

I. We are working along two lines :—

(a) Vocational Education, and (b) Adult Education through lantern lectures and circulating libraries.

### A. VOCATIONAL EDUCATION.

Under this head come our Adult Night Schools and School of Commerce. These are regular classes organised for the benefit of young men. In addition to Association membership, we charge moderate fees for the course.

#### 1. Night School of Commerce.

This is nearly 9 years old. We have two paid part-time teachers. The average strength is 40. All commercial subjects—such as Typewriting, Shorthand, Book-keeping, Commercial Correspondence, Commercial Geography and Banking are taught. This school is also a recognised centre for the London Chamber of Commerce Examinations held twice a year. Candidates from the Coimbatore, Nilgiris, Malabar and Cochin areas appear for the Examinations at this centre.

#### 2. The Adult Night School.

This was started in 1921 up to the 5th class. Last year the school was raised to a Higher Elementary School up to the 8th standard. This is a new departure from the ordinary type of night schools. There are only two or three such Higher Elementary Adult Night Schools in the Presidency. The present strength of the school is 60. We teach Tamil, English, Geography, Arithmetic, Nature Study, History and Hygiene and Sanitation. In addition to these, we give lantern lectures on some general subjects from time to time.

This has been recognised by the Educational Department. The school is opened to all classes of young men. At present there are mill men, foundry men, *peons*, petty shopkeepers, clerks, policemen, barbers, *panchamas* and teachers who want to equip themselves with better educational qualifications. Examinations are conducted every year by the Educational Department Officers and Government Certificates are awarded to the successful students in the 8th standard.

Special advantages :—(1) A boon to those who have had incomplete schooling. (2) Government certificates are given. This gives the men a better status in life. (3) Work is done systematically according to a well-set curriculum. (4) Average attendance is steady.

Here also we charge a nominal fee, but poor students are admitted free. There are 4 paid part-time teachers, 2 fully-trained School Final and two fully-trained Elementary Higher.

One special feature of the school is that the students have evinced a very keen desire to study.

(Point 7) There are only a few students in our school who joined as illiterates. Though we do not as a rule refuse admission to such men, this type of adult night school does not attract pure illiterates. Our experience is this. The schools organised with the object of recruiting pure illiterates do not at all thrive well and they soon come to grief. But, on the other hand, schools where the majority possess already some amount of literacy, go on steadily from year to year with added strength and energy.

Mr. C. Champion, M.A., I.E.S., Director of Public Instruction, who visited our Night Schools, wrote these remarks in our Visitor's book :—

I derived much pleasure from my visit to this Institution. That the strength of the school has increased from 41 a year ago to the present enrolment of 80 must be a source of gratification to the Management and the teachers as it was to me. *One is inclined to draw the inference that an Adult School offering a course of instruction which is a continuation of the Elementary School Course is likely to stand a better chance of success than an Adult School which is a substitution for Elementary School. If that is so, the Management will do well to concentrate upon the former type of school . . .*

## B. ADULT EDUCATION THROUGH LANTERN LECTURES AND CIRCULATING LIBRARIES.

### 1. Lantern Lectures for the masses on Educational Topics.

We get down every month one set and deliver lectures in Tamil or Telugu in 6 or 7 different centres in the town on the same subject, for one full week with the aid of social workers. The Educational Department has been pleased to give us a subsidy for this work. We have had sets like Panama Canal, Canada, Indians in Fiji, Nepal, A Trip Round the World, Japan, Indian Views, Switzerland, Cotton and Spinning, Hampton Institute, Wool and the Weaver, Temperance, etc. All these we got from the Y.M.C.A.

These lectures have attracted hundreds of people at each centre. The same set is taken to places like the Y.M.C.A. Literary Associations and lectures are given suitable to the educated audience either in Tamil or English.

### 2. Circulating Tamil Library.



Here again the Educational Department has given us some financial help. With that we have purchased some 120 Tamil Novels, *Puranas*, Legends, Literature, History, Religions, etc., and put them all in a portable box and sent them to the local Adult Night Schools, where they are kept in the charge of the Headmaster of the school or any responsible person in that locality. Students and other young men living in that place use the books. We have had a very good response in every place. A *pucca* register is kept. It is a great blessing to the men who have no other facilities for general reading.

### 3. Adult Night Schools to meet the needs of City Men.

We do strongly believe in the utility of Adult Night Schools. Whether they reach up to the ideals set forth by the organisers or not, there is no gainsaying the fact that they serve some useful and practical purpose. One hard problem has always been the unsteady and slippery nature of men that come into the schools. Perhaps every six months the first set leave the schools for some reason or other and a new set comes in. It may be that one out of a hundred pupils remains in the school for a reasonably long time to reap the maximum benefits of the steady progressive instruction which a well-conducted school ought to give.

The chief reason is that the men, because of their age, or other attractions in a town life, are not able to stand the strain of regular schooling or to discipline themselves to stick to the school for a sufficiently long time. They soon get tired and get out of gear and go back to their old ways of whiling away their spare time.

Another problem which we face in night schools is this. To attract the pure illiterate in large numbers and to make them literate. Many people think that the school has not achieved anything tangible if it has failed to enlist illiterates and teach them the three R's. But let us turn to another side. There are hundreds of adults in towns employed in various lines of work who have had some schooling in their younger days, who have had some knowledge in their own vernacular and who are eager to continue their old studies and to acquire more knowledge which will make them better men and fit them for better and more remunerative jobs. Is this not a real need which the Night Schools should try to satisfy? Difficulties there are many; but in spite of them, the fact remains that the schools are doing effective service to the community. So then, whether a man

remains in the school for a short or long period, whether he comes to add to the knowledge he already possesses or enters the school with a perfectly blank mind, he will be all the better for it. He will surely acquire something new, something fresh. If we run our schools with this faith and vision, the net result will be really worth while.

### MADRAS Y.M.C.A.

The following are the main points of our programme in the Madras Association at the present time :—

1. LECTURE PROGRAMME on Thursdays and Saturdays. Series of lectures have been delivered on such subjects as :—

- Rural Reconstruction.
- League of Nations.
- Legal Aspects of Social Reform.
- Social Problems.
- History of Religions.
- Education and Unemployment.
- Indian Music, etc., etc.

2. NIGHT COLLEGE. Nine hours per week are devoted for students in the Night College. The subjects taught are :—English Prose, Civics, History, English Poetry, Economics. We have five teachers, all graduates and volunteers. Two of them are trained teachers. The Principal of the Night College is Mr. T. N. Seshachalam, B.A., B.L.

3. EVENING CONTINUATION CLASSES. Most of the students are employed in the Madras Offices. Eight hours are devoted for all students weekly. The subjects taught are :—Book-keeping, English Composition, Physiology, Geography, Mathematics, etc. There are four teachers. All except one are graduates.

4. LITERARY SOCIETY. A well-organised literary society meets weekly. Forty-five debates have been held during the current year. These debates have not only given experience and training for young men, but have had educational values as well. Senior friends co-operate as observers or critics. These debates ordinarily last for two hours. They are conducted regularly on Tuesdays.

5. RELIGIOUS EDUCATION. Five discussion groups are conducted in connection with the Association, and religious lectures are arranged regularly on Wednesdays and Sundays.

6. CINEMA. A recent addition to our programme has been

that of a weekly cinema with stories and educational films. We have had a number of films on Industrial, Mechanical, Physiological and Geographical subjects. Of course you will realise the educational values of these films.

7. **HINDI CLASS.** The Hindi Class meets twice each week.

8. **LIBRARY.** There are 4,000 volumes, 30 periodicals, 4 daily newspapers. These may be said to have a place in our programme of Adult Education.

9. **BOYS' LEADERSHIP.** Two classes are conducted weekly for boys' work training under Mr. Forgie's leadership.

10. **PHYSICAL EDUCATION.** I would call to your attention the classes for training of elementary and secondary school teachers of Madras conducted on Saturday mornings at the School of Physical Education.

[Contributed.]

## THE VIENNA MEETING

**I**N accordance with the custom that has prevailed since the World Conference at Cambridge, the Association organised, on the occasion of the assembly of the Council for its annual deliberations, separate conferences for the discussion of special topics. This year's meeting was held in Vienna and the Austrian Group had strained every nerve to provide a setting for our debates worthy of the cultural traditions of their ancient city. We met in the rooms of the Urania, an institution whose name is familiar to adult educationists the world over. We were also privileged, through the courtesy of our friend of long standing, Miss Levetus, to visit the Volksheim, the oldest organisation in the movement in Vienna. The State Government and the Civic Authorities in the persons of Dr. E. Czermak, the Minister of Education, of Herr G. Emmerling, the Vice-Burgomaster, and of Hofrat Dr. Witt, honoured us by their attendance at some of our sittings. It is never the purpose of these gatherings to collect a large concourse of people, but on this occasion, owing to the fact that two Conferences were held—widely disparate in their appeal—the attendance was larger than usual. General regret was expressed at the absence of the President, whose pressing duties at home had kept him in England, and while we missed some of the familiar faces of former years—Mr. Hegermann-Lindenchrone, Dr. Lindeman, Dr. Subotić, Prof. Hermsberg, Miss van Dugteren and Miss Kraft, Dean Russell and Dr. C. R. Mann, Mr. Fleming and Dr. Hall-Smith, there were present several of the steady

supporters of our society whose names readers will find recorded in the separate reports of the two Conferences which will shortly be published.

The first Conference dealt with the Relation of Adult Education to Unemployment. The Programme has already been printed in the BULLETIN and it will be sufficient to say here that the sessions were carried out as arranged, with fewer casualties than generally fall to the lot of such conferences. Sir Francis Goodenough was unfortunately kept by sickness in England.

The Conference cannot be said to have discovered any royal road by which education can be made to turn a dispirited mass of workless men into an ordered array of hopeful toilers, ready with skill and knowledge unimpaired and with undiminished zest, to attack the tasks which a new order of society might set before them. Such Utopian schemes the Conference wisely eschewed as irrelevant to its purpose, realising that education alone will not avail, but can only have its effect if it be used as one of the means of bridging the gap which separates the potentialities of production from our inadequate capacity for equitable distribution. Professor Allan Fisher, who has had exceptional opportunities of studying the present distressful conditions in Europe, in the East and in America, reminded the Conference that unemployment has not fallen like a sudden mysterious blight upon the industries of the world, due to unknown causes and incapable of treatment by any of the known methods of social and economic reform. The causes are patent to anyone who has eyes to see and, while the remedies may call for more resolute and more drastic action than normal human courage has yet evinced, the position is not helped by folding one's hands and waiting for some heaven-sent panacea. The sense of impending change, far-reaching and solvent, perhaps, of the present stratification of society seemed to impress itself on most of the speakers and listeners to the papers and discussions. The pictures drawn by most of the spokesmen of the countries represented at Vienna were indeed appalling, and it is but another proof of the power of the human spirit to rise amid calamity that those who stood nearest to this human misery were those who were most confident of the power of education to bring relief and to sustain hope. Minds and bodies must be kept active and alert to meet the new era which is approaching. The adult educationist, discarding much of his present practice, must find new ways and means of discharging the claim which the present situation makes upon him.

The second Conference, which owed much of its success to the energy and organising talent of Mr. Levering Tyson, received a more formal send-off. This was the occasion which was distinguished by the presence of the Minister of Education and of the Lord Mayor, as well as of the President of Urania. Arrangements were made for a broadcast to two continents, but even Mr. Tyson's ingenuity could not secure a good reception in the United States. Variety was introduced by a series of short speeches delivered in the native tongue of the groups of the Association which were present at the Conference, and the proceedings closed with an all-too-short but eloquent address from Sir John Reith. In the days which followed various aspects of the problems raised by the intrusion of radio into the field of Adult Education were treated. This incursion was generally welcomed and accepted by those who had previously held aloof and professed themselves sceptical of its usefulness. But while recognition is no longer withheld, divergence of opinion still exists as to the quality and extent of the service radio can give, and as to the proper manner of its use. That it will ever displace the teacher in his class-room not even its warmest advocates would claim to-day. Those who would deny it any larger virtue than that of stimulating curiosity are probably a dwindling band, shivering on the banks of experience, unwilling to take the plunge. Between those two extremes a whole gamut of opinion was expressed at Vienna. It is clear that a series of closely regulated experiments are needed to determine accurately the kind and degree of service that broadcasting can give to Adult Education.

## THE DURBAN LIBRARY GROUP

**I**N 1923 the Public Library in Durban launched an experiment. A Library Group was formed with the aim of extending the interest in the Library and in the things of the Library. The first statement of the policy of the Group declared:—

It will approach Literature and the Arts from a human standpoint and will not aim at being intellectual or "highbrow." It will approach social and political questions with the student attitude rather than that of the party politician.

While the first Annual Report states:—

The Library Group does not exist to provide amusement or

entertainment as such. It is a piece of Social Service for the common good. All thinking men and women are concerned for the betterment of the conditions of human life and are moved to the service of mankind. And the way of that service lies through knowledge.

The Library Group desires to serve by adding to the sum of human sympathy and understanding, by providing an opportunity for the study of thinkers and writers of the past and present and the consideration of living problems, free from the bias and bitterness of party politics. Its aim is human service, and it invites your co-operation in its future work.

Ever since its foundation the Group has attracted a good deal of interest and attention, and the average weekly attendance has exceeded 120. The Group arranges numerous lectures, play readings, debates and reviews of books. It has promoted a Gramophone Circle for the study of music, and tutorial classes for more intensive work in literary and social subjects.

A glance at the arrangements for the present session is sufficient to estimate the variety of subjects dealt with :—

(1) Reading of plays such as *The Apple Cart* (G. B. Shaw), *Easter* (Strindberg); (2) discussions of books; (3) a debate on Film Censorship; (4) single lectures : “ William Penn and his ‘ Holy Experiment ’,” “ Race Relations in Africa and America,” “ Beethoven ” (with musical illustrations), “ Why Metaphysics ? ” “ Delphic Dances ” (with demonstration), “ Zimbabwe and the Bantu,” “ The Native as a Factor in the Economic Development of South Africa,” “ Personalities in British Politics,” “ The Tsetse Fly Problem in Africa,” “ Influences of Environment which favour the spread of Parasitic Organisms,” “ The Novelty of Colour Prejudice in the World ”; and (5) the following short courses :—

Trade depression (two lectures)—

- I. As an Economist sees it.
- II. As a Wage Earner sees it.

Modern Education (three lectures)—

- I. As the Government sees it.
- II. As the Schoolmaster sees it.
- III. As the Parent sees it.

The Commercial Theatre (three lectures)—

- I. As Repertory sees it.
- II. As a Playgoer sees it.
- III. As the Professional sees it.

Modern Democratic Government (three lectures)—

- I. As the Legislator sees it.
- II. As the Lawyer sees it.
- III. As the Taxpayer sees it.

With the Lecture syllabus is issued a list of suggested books dealing with the subjects to be discussed during the session.

During its existence the Group has been fortunate in securing from time to time lectures from people of international reputation visiting Durban.

Meetings are held in the Art Gallery, through the courtesy of the Municipality. The minimum annual membership subscription for the Group is only 2s. 6d., in order to exclude no one who is interested.

As a direct result of the activities of the Group, the Durban Repertory Theatre came into existence, and a local Branch of the British Empire Shakespeare Society was formed. On one occasion a presentation by the Group of the *Trojan Women* was so successful that the Durban Repertory Theatre arranged for the production to be transferred to its own stage.

The Group is represented on the Executive Committees of the Workers' Educational Association, the British Empire Shakespeare Society and the English Verse Speaking Association, thereby ensuring active co-operation between the various organisations. Its success is largely due to the work of its Hon. Secretary, Mr Franklin Rooke, Librarian and Secretary of the Municipal Library.

[Contributed]

## WHAT ADULTS WANT TO READ\*

THIS volume is stated to be the outcome of two years' work on the problem of discovering what people want to read. The question of adult reading was one of those which early attracted the interest of the American Association for Adult Education, and this interest led to the formation of a Joint Committee with the American Library Association in 1926. One of

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\* *Waples, Douglas, and Tyler, Ralph W. : What People Want to Read About: A Study of Group Interests and a Survey of Problems in Adult Reading.* 1931. American Library Association and University of Chicago Press. 16s.

the results of the labours of this Committee was the publication in 1929 of Prof. Gray and Miss Monroe's book on *The Reading Interests and Habits of Adults*, which was reviewed in the BULLETIN in May, 1929. The present work carries the investigation a stage further and has been prepared by Prof. D. Waples, Head of the School of Librarianship in the University of Chicago, and Prof. R. W. Tyler, the associate of Prof. Charters in the Bureau of Educational Research attached to the University of Ohio. The authors point out emphatically that the present study has nothing to do "as yet" with actual reading. It only concerns itself with what people would like to read about if opportunity and the material presented themselves. They remark that all but 5 per cent. of the population read something, but that only about half the population are book readers. This may be, as one writer has suggested, because the books these people want to read do not exist or because they have difficulty in finding them, as others think. The national importance of correct judgment on current issues, perhaps, makes it desirable to discover the degree of interest which attaches to these topics in the popular mind. In any event, for the purpose of this study, the authors turned to periodical publications to help them to determine what matters most occupied public attention. With the help of the *Readers' Guide*, which is the great stand-by of every American undergraduate, and of the *Readers' Digest*, a list of topics was compiled. Certain periodicals were excluded as addressed to groups with special interests, e.g., *American Economic Review*, *Educational Review*, *Science*. The list of those used included certain English magazines, as the *Contemporary Review*, *Edinburgh Review*, and the *Quarterly Review*. A list of 117 topics was compiled and for some enquiries each topic was further subdivided by the insertion of five separate questions under each head, thus submitting to each recorder 585 questions to which an answer was expected. Three types of answer were admitted, indicated respectively by  $x$ , by  $o$ , and by the absence of any mark. The  $x$  represented a high degree of interest,  $o$  no interest, and a blank implied that the potential reader was neither attracted nor repelled by the subject. The book contains an analytic account of the results obtained by the submission of these lists to different groups. It is a cardinal principle of the procedure adopted that the test shall be administered to a collective group of individuals united by some common characteristic—occupation, education, or sex. The last named factor is held to be the most vital in



determining reading tastes. The authors do not submit their results as absolute findings, but desire to encourage those on whom rests responsibility for the selection of books or for the guidance of reading, to make similar investigations. Hence the attempt to give foolproof directions for administering the task, which will weary some readers by the constant reiteration of the obvious. As to the size of the group, it is stated that 60 is generally sufficient for the shortened form of the blank and 40 if the longer catechism is used. For the sake of accuracy a formula is provided by which the general validity of the material obtained can be tested and, if unsatisfactory, the exact number of returns needed ascertained. The statistical apparatus set out in the appendix presents a formidable appearance to the lay mind.

It is found that the chief factors determining reading preference are sex, education, occupation and environment. The groups tested varied widely in their composition and included male prisoners in the Milwaukee House of Correction, Women telephone operators, shop girls, postal clerks, students, high school teachers, farmers and housewives. The authors would probably not desire too much weight attached to the results shown in the tables at the end of the book, but the preferences revealed are interesting. The comparative dislike of biography is at first sight remarkable, but it must be remembered that the material is based on magazine reading and not on books. The almost total lack of women's interest in developments in the automobile industry is strange in a country where so many women drive and when contrasted with their high interest in aviation. As might be expected, the topics of personal hygiene and personal beauty appeal more largely to women.

It will be seen from what has been said that the study has been conducted on ample and well-defined lines and will contribute to a more exact knowledge of the mental peculiarities of the general reader.

[Contributed.]

# WORLD ASSOCIATION PUBLICATIONS

The following are the titles of BULLETINS published to date:—

1. The Inauguration of the World Association for Adult Education, etc.
2. The University Tutorial Class Movement, etc.
3. Adult Education in Norway, etc.
4. Adult Education in France. The World Association: First Annual Report, etc.
5. Adult Education in Spain, etc.
6. Adult Education in Czechoslovakia. The University of the Desert, etc.
7. Adult Education in Wales, etc.
8. Adult Education in China. The World Association: Second Annual Report, etc.
9. The British Institute of Adult Education, etc.
10. Adult Education in Austria, etc.
11. The New High Schools of Germany. The Classics in Adult Education, etc.
12. Adult Education in Russia. The World Association: Third Annual Report, etc.
13. Adult Education in South Africa. A New Zealand Summer School, etc.
14. Adult Education in Sweden, etc.
15. Adult Education in Sweden. Moonlight Schools, etc.
16. World Association: Fourth Annual Report. Oxford, Cambridge and Adult Education. Adult Education and Society, etc.
17. Newer Adult Education in Germany, etc.
18. Adult Education in Denmark. Sriniketan, etc.
19. Some Library Developments. Drama at Beechcroft, etc.
20. Adult Education in Australia. The Leipzig Library. The Place of Music. World Association: Fifth Annual Report, etc.
21. Adult Education in Switzerland, etc.
22. Adult Education in Italy, etc.
23. Adult Education in Calabria, Sicily and Sardinia. Watu Wa Miti. Evenings in the Prisons, etc.
24. World Association: Sixth Annual Report. Some Workers' Colleges, etc.
25. Adult Education in Finland. Adult Education and the Seafarer. Public Libraries in Czechoslovakia, etc.
26. Adult Education and the Arts. International Education in the Pacific. Tutors' Travel, etc.
27. Educational Settlements in England. Two German Experiments. Women's Institutes, etc.
28. World Association: Seventh Annual Report. A Philosophy of Adult Education. The People's Universities in Vienna, etc.
29. The Drama in Adult Education. The British Dominions. The Chairman's Tour. Berea's Opportunity School, etc.
30. Adult Education in Japan. The Frederiksberg Meeting. A Tutor's Tour, etc.
31. Adult Education in Holland. The People's University of Rotterdam. The American Association. Expansion of the World Association, etc.

32. World Association: Eighth Annual Report. A Frau Hermes' Report. The Meaning of Adult Education, etc.
33. Libraries in Adult Education. An English Tutor in Germany. The German Group, etc.
34. A World Conference. China: Some Recent Developments. Japan and Denmark. Coleg Harlech, etc.
35. Adult Education in the United States of America. Casója. Parent Education in Vienna, etc.
36. Adult Education in the United States of America. Adult Education in France, etc.
37. Adult Education in Poland. Hillcroft College. A Californian Experiment, etc.
38. The Oberhof Conference on the Industrial Worker and Adult Education, etc.
39. The Value of Residential Institutions. Some German Residential Institutions. Arbeiterbildung. Adult Education Societies in India, etc.
40. The World Conference. The Highway and the Strait Gate. Adult Education in the Rhondda Valley, etc.
41. Adult Education in Russia—An Outline. The World Conference Seafarers' Education, etc.
42. The Cambridge Conference. Adult Education in South Africa, etc.
43. The Central Workers' College in Czechoslovakia. Two Danish Pioneers. McGill University. Newfoundland and Adult Education, etc.
44. Newfoundland: The Inception of a Movement. The Social Function of Adult Education. Russia, etc.
45. The Relation of the State to Adult Education.
46. The "Swietlice" of Poland. The Brunnsvik Meetings. In Austria To-day, etc.
47. Adult Education in India and Yugoslavia. World Association News, etc.
48. The Selly Oak Colleges. Iceland. The Auckland Summer School. Burma Goes Ahead, etc.
49. Adult Education in Belgium. The Vienna Meetings, etc.

A few complete sets (1-50) are still available and can be obtained on application to 16, Russell Square, London, W.C.1, at a cost of 1s. each per BULLETIN. Bound volumes, containing BULLETINS 1-6, 7-12, 13-18, 19-24, 25-30, 31-36, 37-42 and 43-48 respectively, can be obtained for 8s. 6d. each, post free.

Other recent publications of the World Association are:—

THE INTERNATIONAL HANDBOOK OF ADULT EDUCATION, containing accounts of the provision for further education in the leading countries of Europe, the United States, Australasia, India and Japan. (476 pp.) Paper boards, 5s. 7d. (post free).

ADULT EDUCATION IN THE BRITISH DOMINIONS. Report of a sub-committee on the origin and development of adult education in Canada, Australia, New Zealand and South Africa. (151 pp.) Paper, 2s. 6d. (post free).

MEMORANDUM ON ADULT EDUCATION IN ENGLAND AND WALES, and its place in the Public Educational System. Submitted by the English Board of Education to the World Conference on Adult Education, Cambridge, August, 1929. (19 pp.) Price 7d. (post free).

REPORT OF THE WORLD CONFERENCE ON ADULT EDUCATION, Cambridge, 1929, containing the full text of all the principal speeches delivered at the Conference. (556 pp.) Price 5s. 7d. (post free).

THE  
GURGAON  
EXPERIMENT

BY  
F. L. BRAYNE



# THE GURGAON EXPERIMENT

The following pages describe the Gurgaon Scheme. They consist of the Marquis of Linlithgow's introductory address at the Caxton Hall, Westminster, on December 10, 1928, when Mr. Brayne read a paper on the Gurgaon Scheme, the paper itself, and some Press opinions on the work and the two books written about it.

The Gurgaon Scheme entails considerable expenditure and the only assets which it at present possesses are the rapidly diminishing Gurgaon Welfare Fund in Lloyds Bank, Delhi, and the proceeds of "The Remaking of Village India," which in all editions and translations has been given to the work.

## THE MARQUIS OF LINLITHGOW'S ADDRESS AT CAXTON HALL ON DECEMBER, 10, 1928

Ladies and Gentlemen, . . .

I am very grateful to the East India Association for having given me the opportunity of taking the Chair this afternoon. Having seen something of the work of Mr. and Mrs. Brayne, I am persuaded that it is to the advantage of rural India that the methods devised by them in their efforts to promote the welfare of the villagers should be widely known. That those methods are incapable of improvement Mr. Brayne himself does not suggest, yet no one who has seen the results achieved can doubt that the scheme is full of promise. The progress recorded in the paper has been attained within a period of eight years. If those efforts that have brought about these beneficent changes be continued with vigour unabated and over an ever-widening area for the next twenty years, the beneficent results will, I believe, become permanent. If those efforts are discontinued to-morrow, in ten years' time no trace of the work so far accomplished will remain. To make the future safe it will be necessary to persist until the leaders of the village, women as well as men, are those who from childhood have known the new and better ways. Continued effort over a prolonged period of time is, I am convinced, essential. Hear, hear.) Some people tell us that the villager is happy in his lot and that true kindness lies in leaving him alone. No doubt

all its difficulties in a spirit of greater resignation than might be possible in other circumstances, but that the peasant enjoys his difficulties I for one do not believe. Do devoted parents suffer anguish when child after child is taken from them by the cruel hand of a painful disease? Does the young mother, in a home that is in some cases surrounded by conditions intensely unhealthy, endure no wretchedness or pain at the hands of an ignorant neighbour who happens to style herself a midwife? Does the devoted father of a family relish the spectacle of a home broken up by the loss of his working bullocks? Is it by choice that poor humanity leads a precarious existence in which the slightest buffet of fortune, failure of the rains or the vagaries of some money-lender, can shatter in a moment and for ever the little cup of happiness? I do not believe that, and no one, I think, does. Give the Indian peasant the opportunity of enjoying better things and better health and you will find him very ready to appreciate them.

In the Report of the Royal Commission on Agriculture in India, over which I had the great honour to preside, we tried to make plain our view that there is the closest relationship between a desire for better living in the villages and any substantial improvement in agriculture. It is clear that the extra effort on the part of the individual cultivator required to enhance the outturn is not likely to be forthcoming unless the cultivator is urged forward by an intense desire for a higher standard of living. I believe that that conclusion is sound, and it is immensely important. It means that village uplift as well as being good for the peasant is good business for India. I commend it to those who now or in the future may have responsibilities of government. It bears closely upon a problem which is certain, in my judgment, to present itself with growing insistence as the years pass, that of providing a sufficiency of food for the ever-increasing population of India.

It is greatly to be hoped that the public in Great Britain may not forget the heavy responsibilities they bear towards India. Let them think of India and her future with hopefulness, and let them think and speak well of their Indian fellow-citizens. For many years their interest will be vital for India's good, nor is the time at hand when Indians will cease to put a high value upon the labours of those of our countrymen who can show qualities of kindness, of skill, of enthusiasm and of self-sacrifice in the service of India and her people. (Applause.) It is because from personal observations I know that Mr. Brayne and his wife are among the number of those who are prepared to do service and make self-sacrifices that I introduce Mr. Brayne with confidence to this important audience.

THE GURGAON district, which was the scene of the work I wish to describe, adjoins the Delhi Province on the south and south-west, but belongs to the Punjab. It has a population of nearly 700,000 people living in 1,400 villages, which vary in size from half a dozen huts to a thousand houses or more, and are composed of all the usual Hindustan tribes of Meos, Ahirs, Jats, Gujars, Rajputs, Brahmans, etc.

Mrs. Brayne and I went to Gurgaon at the end of 1920. She was new to India and I had been away for six years. We arrived, after a failed monsoon, in a district labelled, ever since the British first took it over, as "very insecure." Influenza had recently got a record bag in the district; the Indian Army was being demobilized as fast as the soldiers' papers could be signed, and the winter rains then failed altogether. Every village we visited presented a more gloomy picture than the last. There were thousands of ex-soldiers with nothing to do and not a great deal to eat. Many people were undoubtedly on short commons. The canal only gave about 40,000 acres of crops, and the only other green fields in sight were on the wells. There was a little political non-co-operation in the towns, but it soon yielded to treatment, and we were able to devote the rest of our spare time to the study of the problems of village life.

The people were poor, desperately poor, desperately dirty and unhealthy, with no conscious desire for anything better because they had no idea that anything better was possible. The problem was not only to find remedies for the evils we saw around us, put them into practice, test them and prove their value, but to win the confidence of the villagers, convince them that we were both out to help, and could really help them, and finally make them want to help themselves.

#### STUDY AND EXPERIMENT

The whole problem did not present itself to us in a day, and the cure did not come to us in a year or in several years. It took seven years of study and experiment on the part of ourselves and all our fellow-workers, official and non-official, to work out what is called "the Gurgaon Scheme." It is briefly sketched in the report of the Royal Commission on Agriculture, and is fully described in my book, "The Remaking of Village India," just published by the Oxford University Press. Our method of dealing with the villager is dealt with in a book called "Socrates in an Indian Village," also just published by the Oxford University

work in a long pamphlet called " Rural Uplift in Gurgaon."

The Gurgaon Scheme claims to deal with the whole life and activity of the peasant and his family and to present a complete remedy for the present terrible condition in which he lives. At the same time, the remedy is simple and cheap and can be easily applied by the peasant himself if he can be persuaded to do so, and the methods of persuasion have been worked out in the fullest detail.

That we have " delivered the goods " in Gurgaon district has been admitted by the many hundreds of visitors from all parts of India—officials, missionaries and non-officials, ladies as well as gentlemen, Indians and Europeans—who came to see the work. Perusal of the newspaper notices of the first edition of " Village Uplift " and of the work itself will show that the Press is enthusiastically unanimous in acclaiming that the foundations of a new India have been laid in Gurgaon.

Briefly stated, our object in Gurgaon has been to jerk the villager out of his old groove, convince him that improvement is possible, and kill his fatalism by demonstrating that both climate, disease and pests can be successfully fought. He must be laughed out of his uneconomic and unhealthy customs, and taught better ways of living and of farming.

#### PROPAGANDA

Our method is intensive propaganda, aided by laughter and often by song. Once you have gained the confidence of the villager, you can poke fun at him ; and once you can use the great weapon of ridicule, the battle is won. If you will take a glance at " Socrates," you will see that the most successful form of lecture is a stream of good-humoured chaff and banter. As a friend among friends, once you are admitted to friendship, you can go anywhere and say anything, no offence is meant or looked for, and you can achieve your great object of making the villager think and argue, and laugh at himself. Once he does that, he is lost—rather saved, as very few of the old customs that impede his progress will stand the light of reason, or ridicule.

The secrets of our success were to deal with the whole of village life, to take the whole district as the field of operations, and to deluge the area with every form of propaganda and publicity that we could devise or adopt or afford. Uplift is a mass movement, a combined assault, and no area, no part of life, and no method of attack can be neglected.

There are several essentials in the campaign. No custom must be attacked until we have found a satisfactory substitute, or we



shall merely replace one devil with seven. Every position must be assaulted from as many directions as possible—for instance, the filth of the village can be dealt with both from an agricultural and a health point of view—but religion must be left severely alone. Barring religion, however, everything in village life is fair game.

As everyone knows, propaganda will move mountains; there is no habit or custom that cannot be undermined with propaganda, and no new method that cannot be popularized with propaganda, as long as the campaign is sufficiently intensive and continuous and sufficiently lively.

Wireless broadcasting we never had, and loud-speakers only once, but once we can have this last discovery of science, it will be worth all the rest put together. In fact, village uplift in India will only really begin when village broadcasting starts. Once or twice we had the cinema, but that was too expensive for us. In any case, our great ally, the magic lantern, is really a far better weapon for village-to-village lecturing, and infinitely cheaper and easier to work; and the cinema might easily kill it if it became too common.

#### “ A LIVE ISSUE ”

Next to the lantern come the strolling minstrels and glee singers, an indigenous institution roped in and bribed to sing our “dope.” They cost very little, and hundreds of villagers will sit enthralled for hours while they tell them in song how to wash the baby, or what sort of wheat to sow! We plaster the walls with cartoons and posters, distribute leaflets, handbills and poems, issue a weekly gazette, organize shows and demonstrations and competitions—the Palwal ploughing championships are the best thing of their kind in India—and prizes are even given for poems and essays.

Uplift is a live issue, and no one is allowed to forget it. We preach in season and out of season. Not a village or villager but knows all about our campaign and is compelled to have an opinion about it, to take sides and argue one way or the other. We got the district talking and thinking, and that was all we wanted, as the evils we fought were so obvious and the remedies so simple that they were bound to be accepted on their merits before long, if only we could get the people to discuss them. No detail of village life was omitted, no form of publicity neglected, and no village spared.

We make a great bid for the help of Youth, and the Boy Scout, when well trained and well led, is our greatest ally. He delights to shock his parents by driving a coach-and-four through their pet prejudices, and his elders can do nothing but look on and smile approval.

To avoid misunderstanding I must here make a confession. I was the head of the district. I always worked hand in glove with the rural leaders, but once I had them with me in any new departure, I did not hesitate to use the whole of my official influence to obtain acceptance for it and to get it carried out in the villages. I expected my subordinates to help me loyally and they generally did so. No one knew better than they that our only object was to uplift rural India, and no one knew better than the Indian officials and the rural leaders that we were on the right path. Had they not threshed out with me every detail of the programme and discussed a thousand times every possible objection and every possible alternative? It was their hearty approval and their close co-operation and staunch loyalty that enabled us to put our programme into such complete operation all over the district. Without the help of my official position, what we achieved in seven years might well have taken twenty-seven.

The advantages of being able to work out and put into practice and test, and finally confirm a complete regeneration of Indian village life in the period of one official headship of the district, are so obvious that I need hardly defend myself here. We forced the pace deliberately. We were told inside and outside the district that the squalor of the village was incurable, and, even if there were a remedy, its application was impossible. In the short time at our disposal—and we never knew how short or how long it would be—we had to disprove both statements and establish a *fait accompli* to the satisfaction of both the district and of the world at large.

#### SIMPLE REMEDIES

The programme itself is simple. The village must be cleaned by the villagers, not by the menial castes, and the pit is the solution of the problem. Pits six-foot deep are dug by every cultivator, and there is collected—for future use in the fields—everything that now poisons the village, and one end is fitted up as a rustic latrine. The dung-cakes, so commonly used for fuel, must be abolished. Substitutes can be and are being found, and all cow-dung must go back to the fields. The houses must have windows, and so on; simple remedies for simple ailments.

The centre of the problem, however, is the uplift of the women. Without properly trained and properly respected mothers, you cannot have properly brought-up children. The women must be taught to make their homes comfortable and bring up their children properly. They must be made worthy of respect, and the

people must be taught to give them the honour they are due. Unnecessary drudgery, such as the flour-mill and the dung-cake, must be eliminated to give them time to look after the children, to make and mend their clothes, and to tidy and brighten the home. Thus and thus only shall we have the children brought up as good citizens and worthy of the future we hope to give to India. Train the woman, and the village will uplift itself. Neglect her, and we are ploughing the sands. The best teacher of the child is its mother. Let it learn uplift at its mother's knee.

### THE DOMESTIC SCHOOL

The training of the girls presented difficulties, until the villagers recognized that the village school was just as much open to the girls as to the boys. With the well-known high standards of the Indian village, the girls could safely be sent with their brothers; and the next problem speedily arose, how to teach them the domestic sciences. For that we had to found a special School of Domestic Economy, where village women, teachers' wives and other relations were taught the rudiments of hygiene and sanitation as well as sewing, knitting, cooking, and bringing up of children, and then sent back to teach in their village schools. At present they teach the little girls only, but it will not be long before they are in charge of the infants' class as well.

The Domestic School aims at teaching all that a village mother should know, and so popular has it become that the wives of the rural gentry now insist on being admitted for a short course, not to enable them to earn a living as teachers, but to enable them to run their homes better and help a bit in the village. Could we have a more promising sign of the times?

The other special school, known as the School of Rural Economy, trains the male teachers and also the Village Guides, an institution of which you have read in the report of the Royal Commission. Our hope is that every official who comes in contact with village life will, before long, be compelled to go through a course at this school, and for future recruitment of rural officials none will be taken who have not graduated in this most necessary training. When everyone who visits the village is inspired with the same ideals and preaches the same gospel, our attack on the villager will be irresistible.

### THE LADY SUPERINTENDENT

So important is the uplift of the women, and such progress was made in Gurgaon, that it became necessary to employ a special Lady Superintendent to co-ordinate, organize and develop

this side of the movement. Miss E. M. Wilson, an English lady of high courage and ample qualifications, was engaged, and she is in sole charge of everything connected with women and infants' welfare work, including the health visitors and health centres, the training of midwives, the Domestic School, and the co-educational work going on in the village schools.

This appointment has been a rare success ; it has caught the imagination both of the women and of the men. The women have complete confidence in Miss Wilson, and are as keen as she and all of us are on their own betterment. The lady superintendent, however, is not a cheap institution. There are five essential qualifications : maternity work, midwifery, nursing, education, and physical training, and the incumbent must be qualified in as many as possible. Miss Wilson holds diplomas in four of them. The women's work, generally regarded as so difficult, has been perhaps our greatest success, possibly because the women are so keenly alive to the interests of their children that, once they trust us, they are ready to grasp at anything which may relieve their present condition of suffering and ignorance. The foundations were laid by the devoted work of Mrs. Brayne, and the way in which she stood for hours in village after village inspecting the babies and advising their mothers soon won the confidence of the village women.

#### AN INTENSIVE CAMPAIGN NEEDED

People say the East is changeless. It may look so from the outside and *plus ça change, plus c'est la même chose*, but since the war opened up the world to the peasant soldier and modern science annihilated time and space, the Indian villager is changing very rapidly indeed. India—at any rate, Northern India—is ready for a general assault upon all its bad old ways. A five years' intensive campaign would see the beginning of the end of child marriage, the open well, the filthy village, the dung-cake, the wearing of jewellery by children and men, the excessive use of it by women, of wasteful agricultural finance, and of all the uneconomic and unhealthy customs we were brought up to speak of with bated breath. I say this deliberately and after years of discussion and experience. I have raised just as hearty a laugh against all these customs from crowded audiences in colleges and large cities of the Punjab and United Provinces as I have in half the villages of my own district.

The slogan has hitherto been "Hands off Oriental customs," but when our whole system of education and of administration, and our whole life in India is one big attack on Oriental habits of thought and action, surely it is better for us to form definite

objectives and try and mould the changes into profitable directions, instead of trying to ignore the fact that the whole fabric of Eastern life has been undermined and is crumbling before our eyes. Much of the change is for the better, but some is for the worse. Dare we shut our eyes to it, instead of trying to use our influence to assist in directing it?

Such are the very briefest outlines of the objects and methods of the Gurgaon Scheme. It is a mass movement, and loses much of its force if applied on a small experimental scale or to only a part of village life. It is a general attack, a large-scale offensive, and not a series of trench raids, that is going to roll back the forces of dirt, squalor, and ignorance in village India. The details will vary from district to district, but the main lines are, I think, what have been laid down at Gurgaon during the last seven years.

#### AN ALL-INDIA TASK

Should this work be extended over the whole of India? I am certain of it. We are pledged to democratic institutions. India is a land of villages, and our voters must always be predominantly peasants. At present the peasant's horizon is bounded by the next meal or the next harvest. He is sunken in debt and the slave of dirt and disease. He is obsessed with the struggle for existence, while that existence is made infinitely difficult and complicated by a mass of unhealthy and uneconomic customs in which he can conceive no possibility of change or improvement. How can he exercise his vote with intelligence and discrimination, until he has been lifted out of the slough in which he is at present sunken? Village uplift will not only teach the peasant to understand his own interests, but will also make him ready to vote for, work for, and pay for his own betterment.

#### ANSWER TO CRITICISMS

There are three main lines of criticism of the Gurgaon Scheme. First the personal equation, and the difficulty of securing continuity, secondly finance, and thirdly the population problem.

The third is easily settled. The main end of the Gurgaon Scheme is not to increase produce—that is only an incident of the campaign in a poor district—but to raise the standard of living, and no rise in the standard of living has ever yet been accompanied by an abnormal rise in the birth-rate. The "uplifted" villager will never be submerged by an increase of population. We do increase produce and we stop waste, but we teach how to spend as well. We do not replace silver ornaments with gold, but with mosquito-nets and warm clothes. The mere increase of wealth is not a goal of village uplift: the villager's whole outlook and manner

ness, but because we have already taught her to devote more time to looking after her children.

The other two problems go together, and depend upon the agency to which we entrust this vast work. Are we going to regard uplift as a hobby for enthusiastic officials and their wives to dabble with in their spare time, or do we conceive it as the most important duty—after the maintenance of law and order—of the Government of a village-dwelling country? Do we regard village uplift as a stunt, or do we recognize it as the essential forerunner and accompaniment of a Government based on peasant suffrage?

### DEPARTMENTALISM INAPPROPRIATE

For myself I have worked long enough at this vast business to be quite convinced that it cannot just be tacked on to the duties of the district officer. He already has more work than he can do, and is already slipping out of touch with the villager owing to the multitudinous calls upon his time at headquarters. Moreover, the work, besides being of unlimited extent, requires special qualifications and special training.

Nor do I think that it is possible so perfectly to co-ordinate all the present departments of Government that this work can be left to them alone. Had this been possible it would have already been done, as there is nothing new in the details of the Gurgaon programme. The only new thing is the co-ordination of effort, or rather the popularization and application, by a specially trained staff of propagandists, of the many benefits which the various departments of Government have in store for the villager. The uplift worker is, in fact, the village publicity agent of all the departments of Government. He tells the villager in his own language of the good things Government has discovered for his benefit, and shows him how to avail himself of them. He finds out what the villager's trouble is, and suggests a remedy. He is not a specialist, but has a general working knowledge of the results of the work of all the specialist departments, and this he passes on to the villager as required by the particular problem he is trying to solve for him. The uplift worker is the interpreter of the good intentions of Government for the betterment of the villager.

The villager has little use for specialists. Just as all the threads of Government activity emanate from one source at the fountain head, so when they reach the village must they all be collected together again and presented to the villager as a connected whole. The villager will never appreciate the details and ramifications

of departmentalism ; the only way of helping him is to send him people like himself, who look at village life as one big whole and can advise him generally about the many problems of his life.

Besides, the work is too vast to be anything but a " whole-time " job. There is an immense amount to be done besides preaching and demonstrating from village to village. Work has to be inspired and co-ordinated from district to district ; district workers must be trained, and there must be training establishments within the district for the village workers and the schoolmasters and the schoolmistresses. There is research to be done, cinema films have to be made, and village newspapers organized not only for men, but for women and even for children. Every fair must be flooded with every kind of propaganda. Districts will require help in designing and printing cartoons and posters and in making lantern-slides. Above all, village broadcasting must be organized.

#### PROPOSED SPECIAL AGENCY

There is no doubt whatever in my own mind that if village uplift is going to be carried out on the universal scale that is necessary to prepare India for self-government, it will have to be entrusted to a special agency, with its own staff, its own training institutions, and its own money. It is a special kind of work demanding special training and special qualifications, and it dovetails into the work of every department of Government, just as the existing departments already dovetail into each other.

In the Punjab the nucleus of this new agency already exists in the provincial Rural Community Board and the district Rural Community Councils. The various officials of Government already have their hands full. The district boards have their statutory duties and their statutory limitations. These new rural councils have filled a gap and are making good, and, inspired and directed by the special uplift staff, will easily and naturally develop into the village uplift agency.

Not that the establishment of such an agency will absolve the district officer or any other official from his primary duty of doing all in his power to uplift his fellow-men. Just as the Royal Commission on Agriculture laid it on every official to help the co-operative movement, so it is and ever will be the bounden duty of everyone, official or non-official, to help forward the great movement of village uplift.

#### FINANCE

The financial problem will solve itself, if we create a special uplift agency. The villager is an excellent tax-payer, but nowa-

beginning to wonder where his taxes go, and so far from suggesting that he should pay more, he and his elected representatives are sometimes inclined to suggest that he should pay less. Give the villager his own special helper, living and working in the closest touch with him, tackling his everyday difficulties and problems, and not only tackling but succeeding in solving them—and Gurgaon has proved that success is certain—and he will gladly pay whatever is needed to finance the uplift campaign. Gurgaon is poor enough, but it demonstrated the truth of this again and again. The villager does not lack intelligence ; convince him that you are out for his betterment, and that you can deliver the goods, and you will never lack for funds.

### ORGANIZED SUPPORT

The question next arises whether, if Government has co-operated in establishing a special agency to co-ordinate, organize, and inspire this great work of rural uplift, our duty has been done. I think not. There is room for private effort and very ample room. There is much interest being displayed both in India and in England at the moment, in the welfare of rural India, and there is a very widespread desire to help, but no one knows quite how to set about it. If we could organize some sort of association that could head up all this philanthropic enthusiasm and turn it to proper account, invaluable assistance could be rendered to India.

Apart from arousing interest and disseminating information, the collection of money is extremely important. Pioneer work is always difficult to finance. Governments and local bodies work by budgets carefully calculated long in advance, and new and experimental work can rarely claim a place in the estimates of future expenditure. There is a very real need for an organization which could help experimental work till it has sufficiently justified itself to be included in official budgets. The Carnegie Trust in England has recognized this need, and makes special provision for the assisting of pioneer work. Two of the principles governing its policy are : (1) "The Trustees' purpose rather is to provide the initial expenditure for the efficient inauguration of projects which are likely to have a permanent material value"; and (2) "new projects of a pioneer order take precedence of old-established schemes, the value of which is generally recognized, and which, therefore, can legitimately look for support from the general public or are the objects of statutory provision."

This is my idea of the function of an Indian Village Welfare Association. It would not relieve Government or any local body



experiments and give a start to work which otherwise might never have a chance. As soon as the work had made good and proved its value, the Association would drop out and leave Government or local bodies to finance it. A typical instance of the manner in which the Association would work can be seen in the way the Carnegie Trust has helped rural community councils in England with initial grants for a term of years.

The encouragement that such an Association would give to the workers in India would be beyond all calculation, and out of all proportion to any financial assistance it could render to the actual work. To realize that they had at their back an organized body of friends and supporters both in India and England would be an immense stimulus both to officials and non-officials working in this great field.

There is already work of the kind I have described waiting to be helped. There is Gurgaon with its many institutions and its many experiments, and there are the rural community council in the Punjab, which, as I have said, might easily be expanded into a great rural uplift agency. In fact, there is ample ground for the Association to start on in the Punjab, and it would probably be advisable for it to confine its labours at the outset to establishing the work in Gurgaon and the Punjab and Delhi Province. One well-cultivated crop is worth many scatterings of seed, and, before spreading to other parts of India it would be well to make a success of one place first, and that a place that we know is thirsting for our help. Once "uplift" has taken firm root in the North it will soon spread over the rest of the country.

There are branches of the work where the Association can provide immediate help. Village broadcasting must be established and there is a big field for travelling cinema shows. If they make good as means of uplift—as undoubtedly they will—the Association will soon be relieved of them, and its funds released for further pioneering. An even greater opening for the immediate attention of our Indian Village Welfare Association is the women's welfare work. This sort of work is and always will be hard to officialize and offers a perfect field for unofficial enterprise. The Lady Superintendent at Gurgaon is even now being financed from public subscriptions raised spontaneously by the people of Gurgaon on the eve of my departure from the district as a proof that they were determined to carry on the uplift work. But this fund will not last for ever, and it would be a great thing if the women's welfare work could be made the special object of such an Association as I have outlined. I am far from suggesting the pauperization of the Indian villager, and those who know him will agree with me that he does not want it either. The villager will pay a

right, but he must first be convinced that he is being asked to pay for something worth having, and he must be given a lead and he must be organized.

I have pointed out the immediate need for such an Association and suggested some of the splendid opportunities for service that await it. There is no doubt that we could do an immense amount of good by organizing ourselves to give a lead in this vast work of rural uplift, and to demonstrate in a practical shape our goodwill towards India. There is a very general desire for rural uplift work in Northern India, and the presence of an Association strongly supported in India and England would put heart into all those who wanted to get on with the work, while the fact that money was available, in however small quantities, for approved enterprises, would often bring about the starting of these very enterprises.

I do not wish to claim that Gurgaon uplift is the only work going on or the only possible scheme for the regeneration of rural India. I do claim—and in this I am supported by the many visitors to Gurgaon, the Press, and the very considerable correspondence which the writing of a book about it has produced—that the Gurgaon Scheme is a complete and logical whole, and does provide a satisfactory and practical remedy for the existing state of affairs. In this paper I have endeavoured to explain its principles and practice, and to point out how I believe it can be extended to a far larger area than the Gurgaon district, and how the difficulties which have been suggested from time to time can be overcome.

Gurgaon is only a demonstration. If the work has any value at all, it is an indication of what it is our duty to do for the whole of India. One thing is certain. We hold India in sacred trust, and whether as officials or as members of the British Commonwealth of Nations, it is our solemn duty to leave no stone unturned to secure the uplift and betterment of her village population. If, as I have dared to hint, and as has been directly suggested in the Government pamphlet on the subject, the New India has begun in Gurgaon, the task now before us is how best and quickest to establish it firmly there, and then to extend it throughout the length and breadth of that great country.

## RURAL HEALTH IN INDIA PIONEER WORK IN GURGAON

*The Times.*

What has come to be known in India as "the Gurgaon experiment" is the attempt of Mr. F. L. Brayne, of the Indian Civil Service, to inculcate and enforce a rational hygiene in a

number of villages in the neighbourhood of Delhi. "Socrates in an Indian Village" (published by Mr. Humphrey Milford to-day), a series of dialogues in the Platonic vein, is a description not so much of the reformer's ideals and methods as of the obstacles which confronted him. For those who know India Mr. Brayne's vivid and truthful realism needs no word of commendation; for others his book may have an even wider and deeper interest. It explains far better than many a more pretentious treatise the peculiar difficulties which beset any form of government or administration, foreign or indigenous, in India. The average Indian is obsessed by the belief that everything can be done, and ought to be done, by "the Government" without cost to or co-operation of those who are governed. And against any innovation, however reasonable and patently advantageous, is raised the cry, "It is not the custom." . . . Against these evil customs with their disastrous results to the general health and welfare of the villagers, Mr. Brayne has striven by advice, encouragement, objurgation. "Socratesji" certainly has a sharp tongue; but his asperities are candidly explained and excused by the prefatory remark that "the only way of rousing the village is to be startlingly rude or extremely vulgar." Of the villager to whom these objurgations are addressed, it is truly said that he "has a very soft heart, and soon forgives the liberties taken by an old friend." Whether he will pay any continuing heed to his friend's admonitions is another question; but it is pleasant to learn that a certain measure of success has attended Mr. Brayne's efforts.

We also welcome the republication of "Village Uplift in India," the second edition of which Mr. Brayne has just issued through the Oxford University Press under the new title of "The Remaking of Village India." In his preface to the new edition the author tells us of the progress in the last year of his encouraging experiment, and dwells on the need for more money and fresh helpers. In a foreword, Sir G. F. de Montmorency, Governor of the Punjab, draws attention to the admirable work which Mr. and Mrs. Brayne and their devoted fellow-workers are doing "to overcome the inertia of centuries and to bring a little light to thousands of humble homes."

#### THE REMAKING OF VILLAGE INDIA \*

MR. BRAYNE has been in charge of Gurgaon, a dry district of the Punjab bordering on the United Provinces, since 1922, and has

\* "Socrates in an Indian Village," with a foreword by the Right Hon. Lord Irwin, price 7s. 6d. "The Remaking of Village India" (being the second edition of "Village Uplift in India"), price 5s. By F. L. Brayne, M.C., F.C.S. (Humphrey Milford, Oxford University Press.)

there effected a change both material and mental a little short of miraculous. Examples of welfare work we have in plenty. Many of the large industrial firms in India have built model villages for their employees. Missionaries have founded settlements for their converts. Quite a large body of men, the Sepoys, have lived under conditions realising some of the welfare aims while in the Indian Army. But the disheartening feature of all these efforts has been that their good effects are invariably limited to the place and period when they are made. Coolies leaving the lines, soldiers leaving the army, nay even students leaving Indian and European Universities, bring back to the villages but little of their acquired culture. Mr. Brayne has tackled the villagers in their homes and demonstrated to them the practicability of a happy and prosperous life developed on their existing resources. As head of the district he had a power and influence denied to missionaries, but coupled with it a missionary enthusiasm foreign to most men in his official position. His wife has tackled the almost larger task of the two, teaching the village women, in an equally devoted spirit. The question raised by this book is how this work is to continue and spread so as to give a happy and prosperous India in our time. It is the largest question before the Indian Empire to-day, vitally affecting 300 million Indians. The British have spent one and a half centuries in charge of the government of India without venturing on that fundamental interference with the lives of the people essential to their well-being. Religious tolerance and civil liberty have been the slogans, but willingness to leave well alone has undoubtedly played a large part. Mr. Brayne's book cannot but awaken us to the essential immorality of this attitude. At the same time he demonstrates that these fundamental interferences can be made without incurring resentment ; once the spirit is appreciated they are welcomed even before success is fully proved. In more fortunate countries such reforms have usually been initiated by private enthusiasts, Government following only when public opinion has formed. In India Government must lead ; the public opinion of 300 million uneducated peasants is impossible to obtain ; what is obtained in its place is the criticism of the Indian *litterati*. The fear of this criticism is apt to limit the action of the Government to the bestowal of a blessing and to preclude the allotment of men and funds. Should criticism be made of *lack of progress*, the Gurgaon experiment itself would be cited to prove to the contrary !

Now Mr. Brayne's gospel has probably reached the ears of a million cultivators, about one-tenth of whom have benefited to any extent so far. Literature, loud-speaker lectures, even envoys from Gurgaon, are ammunition, but where are the guns ? We have seen co-operative credit in India started with such enthu-

siasm, settle down to a rate of progress which, unless materially enhanced, will not permeate the peninsula for two centuries.

To conquer the poverty and disease in agricultural India in one generation, three hundred Mr. Braynes are needed, all continuously and enthusiastically backed by the local government concerned both in British India and in the Native States.

Finance appears to offer no serious drawback. Mr. Brayne's figures are perfectly astounding in showing how little the reforms cost and how amply the expenditure is returned after the very first harvest. The question is not so much can this work be undertaken as can we afford to neglect it any longer? And this is a business question quite apart from being a human one. Second to China, India is the biggest undeveloped market in the world, a market that will remain undeveloped till its cultivator's prosperity is assured.

S. A. B.

*Daily Herald.*

... Here are two books, "Socrates in an Indian Village," and "The Remaking of Village India" (Humphrey Milford, 7s. 6d., and 5s. respectively), by F. L. Brayne, lately a Deputy Commissioner in the Punjab, dealing with precisely the same topics, the evils of child marriage, the servitude of women, the dirtiness and ignorance established by custom in popular life, which show how these evils can be exposed without offensiveness or misrepresentation and attacked in practice with the sympathy and co-operation of those among whom they prevail.

"Socrates," says the author, "is a very rude old man, and it is only the obvious sincerity of his motives, and the obvious truth of the blunt remarks that he makes that prevent the villagers from at least turning him out of their villages." But the villager, "though he often has a quick temper, has a very soft heart, and soon forgives the liberties taken by his old friend."

Moreover, the Indian villager never objects to discussing any proposition, however offensive it might be deemed to be to himself: he only claims and exercises the reciprocal liberty of speaking as freely, but with all courtesy, in reply about the point of view or the practices of his European critic, who, of the two, is the more likely to lose his temper and take offence.

Mr. Brayne was one of the leading spirits in promoting what has come to be known as the "Gurgaon Experiment," a sort of mutual improvement organization established in his district.

Beginning with the two principal desires of every villager, good crops and healthy children, these books inquire and

demonstrate in simple and incontrovertible language why he does not get them. It is because his methods of farming are bad, his village is filthy, he lives in dirt, squalor, disease and suffering, from causes very easily preventable ; he is the prey of epidemic diseases ; he wastes his wealth in extravagant purchases of jewellery and trinkets to please his women, or in usurious interest to the moneylender ; he keeps his women-folk in ignorance, degradation and slavery ; he pays no attention to his home or his village, and spends no time or thought over bettering himself or his surroundings ; he resists all change ; he is illiterate and ignorant of what processes village folk in other civilized countries and in other parts of his own country, are making, and what he can himself make if he sets his mind to it.

Mr. Brayne describes the progress already effected, merely through the diffusion of understanding how to improve matters, through schools, through rural economy and domestic economy, cattle improvement schemes, horse and pony improvement schemes and village improvement schemes. The character, programme and methods of these are set out in the smaller book.

Throughout the district, he says, pits for rubbish are now almost universal, provision of latrine arrangements in quite a number of villages, marriage registers almost universal, reduction of jewellery and earrings, bright Boy Scouts, girls receiving instruction, vaccination, inoculation, Persian wheels for lifting water, iron ploughs, improved wheat seed, new sugar canes, a thousand co-operative banks, agricultural shows, community singing, drama, lantern lectures, improved bulls, a public hall, ladies' gardens, women's institutes, mixed tennis clubs, and much more than this.

*Manchester Guardian.*

... Attention was first attracted to the "Gurgaon experiment" by the evidence which Mr. Brayne gave before the Royal Commission on Indian Agriculture. That evidence, confirmed as it was by ocular demonstration, was largely responsible for leading the Commission to one of its most important conclusions. "Of all the factors making for prosperous agriculture by far the most important is the outlook of the peasant himself. This is in the main determined by his environment. The improvement of village life in all directions thus assumes a new importance. The demand for a better life can, in our opinion, be stimulated only by a deliberate and concerted effort to improve the countryside."

Briefly speaking, Mr. and Mrs. Brayne set out to raise village

life out of dust and dirt by making the villager ashamed of the sordid conditions in which he had been content to live, and showing him exactly how it was in his own power, without spending money, by dint of merely a little exertion and organization, to effect an immense improvement in those conditions. From this they proceeded to build up a regular organization, propagandist and educational, to keep stimulating the villager to aim at better living for man and woman right through from the cradle to the grave, and to keep enlarging and improving his powers of self-help// The books should certainly be in the hands of every district officer in India, European or Indian. They are also of interest to all students of Indian affairs for the description they give of the conditions of modern village life in a Punjab district. . . .

*Irish Times.*

“If the countryside is to remain happy and contented,” says a contributor to *The Times*, Mr. F. L. Brayne, “village welfare work must begin at once.” Mr. Brayne gives an account of what has been done in the very poor and backward district of Gurgaon, adjoining the capital city of Delhi. There, as elsewhere in India, the manners and customs of the Middle Ages still obtain. The task was so to prevail against ignorant prejudice as to bring the village life into line with modern conditions. For seven years an intensive endeavour has been made, and four principles have been observed. First, it was realized that the produce of the soil must be increased; for “little can be done with people whose horizon is bounded by the next meal or even the next harvest.” Secondly, waste was attacked. In the third place, the health of the village was considered, and to this end every effort was made to establish cleanliness in the villages. Finally, an effort was made to raise the standard of living. These four aims were sought as one, and “the campaign was a general assault upon everything which worked against the wealth, health or welfare of the villages.” The slogan was “Double the crops and halve the disease.” Great success was achieved, and it was thought that a headline was being written for the imitation of all India; but one great shortcoming was discovered. The work was “official.” Benevolent endeavour worked wonders, but failed to ensure their permanence. The Government, after all, operates through an ever-changing personnel, and its works cannot be rooted in the soil without the intelligent help of the abiding population whom it is trying to benefit. Mr. Brayne points to the need of an enlightened popular desire for higher standards of life. These things are a parable.

*Daily Telegraph.*

This is the story of the Gurgaon experiment. But what is this experiment? It is one that is in a fair way to wipe the tears, the persistent, hopeless tears from the face of rural India; the tears, in particular, of her suffering, inarticulate women, and of her too early born and too often neglected children.

It is terrible to read of the conditions under which millions of Indian villagers, our fellow-subjects, exist. They are set down by Mr. Brayne with an unsparing frankness which does him honour. And what causes them? Misgovernment, oppression, want of voting power? No, but inherited prejudice, ignorance and apathy. This is the trinity of evil against which Mr. Brayne and his wife have been contending for years, with a persistence and devotion that are beyond all praise.

It is impossible to read these books without emotion. The narrative of so much misery and squalor at first induces deep depression, but later this feeling gives place to hope, when we are furnished with evidence that the writer's efforts at amelioration are slowly but steadily making way, that the advice and instruction so laboriously and repeatedly conveyed begin at last to be assimilated, and that the new ideas spread from village to village of Mr. Brayne's district, to pervade in course of time, it can hardly be doubted, other districts also. There never was a last crusade, there never will be. But even crusades cost money, and every purchaser of "The Remaking" will thereby contribute to the expenses of this great campaign.

Great—the epithet is not excessive. Here are millions living maimed lives quite needlessly for want of enlightenment; and here is a small band of enthusiasts, English and Indian, occupied in spreading the light. . . .

*The Listener.*

Mr. Brayne set himself the task of showing the villagers of Gurgaon how large a part of the miseries they endure, and endure without thought or hope of change, can be remedied by the simplest means. He founded the Gurgaon Uplift Trust, to which in one month of 1928 the villagers of the district contributed 25,000 rupees. In the volume now reissued as "The Remaking of Village India," the whole effort is explained; and in his book of Socratic dialogues, recording actual talks with villagers, Mr. Brayne discloses the method of his attack upon the rural mind. This Socrates, he admits, is a very rude old man. He uses the plainest words, and repeats himself again and again upon such matters as night-soil and latrines, the shocking waste of women's labour in making dung-cakes, the horrors of child-marriage and



child-birth. The Gurgaon Trust was formed as a communal scheme of reconstruction—for better village living, for better farming and credit, for recreation and education. It is a pioneer enterprise that is certain to bear fruit.

*The Spectator.*

What India needs to-day is contact with hard, gritty facts. Of priests and prophets there is no lack. The priests leave the Indian peasant in what Mr. Montagu rightly called his "pathetic content," the slave of custom, unable to analyse the causes of his poverty, ill-health and discomfort. The prophets preach to the town proletariat and the immature student ideas that lack historical foundation and have no bearing on the conditions of present-day life in India. Meanwhile, the Government, a weary Titan, stumbles slowly forward, providing through its education, medical, agricultural and industrial departments the means of regeneration for a new India with eyes open to see and minds trained to think about its needs and opportunities. Here indeed is work for a Socrates. And in the Punjab, from among the sun-dried bureaucrats, has emerged one who seems to combine the educational shrewdness of the snub-nosed stone-mason with the apostolic activity of a General Booth. For the schools, dispensaries, co-operative credit societies, and simple sanitary devices, by which life in many Gurgaon villages is to-day enlightened, Mr. Brayne claims, and can claim, no credit. They have long been offered to Indian villagers. But his is the credit for the direct and concerted action now being effectively taken by a devoted band of non-official and official enthusiasts, to bring home to every village in the district, by practice and precept, the possibility and compelling necessity of material improvement.

The first book on our list shows what is being done by practice. The second, which has really captured the Platonic manner, shows the teacher at work, line upon line, precept upon precept. The two books together give the English reader a clear idea of an inspiring campaign against dirt, waste, ignorance and stupidity, and a far more vivid account of agricultural life in India than the recent Linlithgow Commission Report, which acknowledges handsomely the inspiration drawn from Mr. Brayne. Purchasers of these books will be contributing to the expense of furthering the good work and of broadcasting much-needed translations in all parts of India.

*The Nation and the Athenæum.*

These two books describe an experiment of great interest and immense possibilities. Mr. Brayne, who was in charge of a

district a few miles from Delhi, has combined with his ordinary administrative work an attempt to reform village life, and in doing so has waged an active war against the less desirable customs and social observances of the Hindu peasant. There have, of course, been many instances of Englishmen in Government service who have undertaken the regeneration of backward races in India—men like Outram with his Bhils, or in modern times Mr. Starte with his criminal tribes. Such men have, however, usually worked among those who are outside the Hindu social system, and there has been a tradition against interfering in the village life of India as being too intimately bound up with religion. The field has thus been left to the missionaries, but their sphere of activity is very limited, and in practice they have worked also almost entirely amongst the lowlier castes. Mr. Brayne has made a great advance by showing that in an ordinary agricultural district it is possible to get support from the people themselves for an intensive campaign in favour of better living and better farming, although it runs counter to many recognized Hindu customs and ideas.

Undoubtedly better village life is bound up intimately with any hope of improvement in peasant farming. To take a simple but important example. Most Indian agricultural land is starved for want of manure, but in every village there are masses of filth, most of which has considerable manurial value, lying about and wasted. The collection and utilization of village ordure requires a new outlook on ceremonial cleanliness, and on the question of village servants. Again there are many parts in India where the women spend much of their time making cow-dung into cakes, which they use for cooking. This is a disgusting habit which degrades the women while it starves the fields. Thus the farmyard is closely bound up with female education and the proper position of women. Similarly child marriage can be shown to be as economically wasteful as it is morally unsound. Along such practical lines as these, Mr. Brayne, helped by his wife, has carried on an active and effective propaganda in the villages of his district. . . .

. . . Perhaps the most encouraging part of the experiment is that Mr. Brayne has been able to enlist a number of helpers from the educated classes, and that these have co-operated enthusiastically in working such English institutions as a Rural Community Council, Boy Scouts, and Women's Institutes.

*Times—Literary Supplement.*

. . . Mr. Brayne's work falls into two divisions. First comes an exposition of the perfectly obvious and easily amend-

able insanitation which makes many an Indian village a mere nursery of disease. Then follows an exhortation to the villagers to supplement the very considerable skill in agriculture and village crafts, which is the heritage of the past, by an intelligent appreciation of the needs and advantages of the present. The insanitation of India is a strange paradox. Probably no other people in the world have made so many rules as the Indian people in respect of personal hygiene, probably no other people follow rules once made with such scrupulous exactitude. And probably no other people in the world reap so little benefit from their sanitary precautions. The quite indisputable explanation is that in India understanding of the spirit of the law has been utterly stifled by a blind and satisfied obedience to the law's mere letter. The high-caste Indian excludes, perhaps understandably, from his drinking well all persons whose occupations bring them into constant contact with things obviously unclean. Such persons would be sweepers, scavengers, handlers of the carcasses and skins of dead animals. But, these persons safely excluded, the casteman will contentedly wash himself and his clothes in the well from which his wife draws the household's daily supply of drinking water. Quite wisely the Indian has decreed that the needs of Nature must be satisfied without the dwelling-house. But this excellent rule is often satisfied by a mere stepping into the public street, with the result that dried excrement is a constituent of the air which the Indian villager breathes daily. The bitter-tongued "Socratesji" remarks rather brutally that to the Indian woman, whom modesty bids veil her face by day, are permitted at dawn or nightfall courses really stupefying in their immodesty.

The dead-weight of Indian "custom" is well illustrated by the dialogue of Socrates with the discharged soldier. In the army the soldier had learnt by compulsion the use of the mosquito-net. He had brought nets home; his wife had fashioned them into shirts for the children, and the household was racked with malaria. It is certainly true that there is nothing so nearly impossible as to induce an Indian, even an educated Indian, to adopt the simple safeguard of the mosquito-net. Russell, the famous shikari of Southern India, equipped his servants on a hunting trip with camp cots and curtains. The servants made up their cots and slept beside them on the ground. Inside a week all were down with acute malaria: "It is not the custom," was their answer and explanation. . . .

. . . Mr. Brayne is perfectly justified in saying that the returns of the Indian farmer have long been injuriously affected by a careless indifference in the matter of buying seed. Here

his teaching seems to have borne fruit: his villagers have grasped the fact that a slightly larger initial outlay on selected wheatseed is repaid many times over by a largely increased crop yield. The same lesson has been profitably inculcated by the Agricultural Department in respect of the cotton fields of the South. Again, it is quite true that the Indian customs of using valuable manure for fuel, of breeding cattle from bad stock, of using crudely made and ineffective agricultural implements, are wasteful in the extreme. On the other hand, not all or many Indian villages are so well supplied with wood fuel as apparently were those in which "Socratesji" held discourse. In the matter of cattle breeding the reformer is "up against" the blank wall of refusal to slay cattle. So long as immature or outworn bulls roam the pastures, so long as hordes of useless animals eat down the scanty grass, so long will Indian livestock leave much to be desired. This is not an argument against reform, but a statement of an incontrovertible fact which at present renders reform extremely difficult. Certain apparently uneconomic agricultural processes in India—though certainly not the careless making and use of the simplest tools—can sometimes be justified by "the law of diminishing returns." Indian holdings are often so small that no question of economy of time can arise. It will not pay a man to sink money in speed-giving equipment if he has practically unlimited time for possibly slow but certainly cheap methods. Even in England a small farm slowly and cheaply worked with a pair of horses and persistent hand labour is often better "done" than a huge acreage ploughed, cleaned and harrowed by speedy and expensive steam and petrol machinery. Strong draught-cattle and deep-cutting iron ploughs are undeniably advantageous on certain Indian soils, but there are soils and holdings on which light cattle and light wooden ploughs probably yield better results. . . .

*Pamphlet No. 1*

# Village Industries in the United Provinces

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## VILLAGE INDUSTRIES IN THE UNITED PROVINCES

### INTRODUCTION

India is primarily an agricultural country where bulk of the population follows agriculture as its staple occupation. Though agriculture supplies the requisites of human existence yet it cannot be denied that the occupations connected with industries are far more remunerative than those connected with agriculture. It has been noticed that in the progressive countries of the west industries have played a prominent part in the building up of national Prosperity. The percentage of the agricultural population in this country is about 67 per cent. "if those who follow it only as subsidiary to some other occupation are excluded",<sup>1</sup> while in the western countries it has been very much less and the income per capita in India from industrial occupation is very much less than that in the western countries. According to Sir M. Visvesvaraya<sup>2</sup> the income per head of population derived from industries and agriculture respectively, in India as well as a few progressive countries of the world is as follows—

Country	Income per capita	
	Industries	Agriculture
America .. .. .	963	175
Canada .. .. .	545	344
Great Britain .. .. .	465	62

<sup>1</sup> Refer Census of India 1931, Vol. I, Part I, page 286. | ✓

<sup>2</sup> cf. speech by Sir M. Visvesvaraya, K.C.I.E., delivered at Bangalore on July 10, 1933.

Country	Income per capita	
	Industries	Agriculture
Sweden	384	129
Japan	185	85
India	12	48

The above table distinctly shows that the people of this country are overwhelmingly rural whereas people in the west pay great attention to industrial pursuits. The greater number of cultivators have at least from 2 to 4 months leisure in the year. It is, therefore, in the interest of the agricultural population which forms the real backbone of this country that a scheme should be formulated by which the villager can best utilize the periods of agricultural inactivity for the improvement of his economic position by taking to suitable local industries.<sup>3</sup>

The conditions prevailing in these provinces are in no way an exception to the general conditions prevailing all over the country.

Village industries in these provinces are classified under two general heads—

(a) Domestic industries providing subsidiary occupations to the agriculturists.

(b) Rural industries more or less of the ordinary factory type.

A large number of artisans are seen scattered all over the province following on a cottage system various kinds of rural industries of the village and domestic type. These industries consist in (1) handloom weaving, (2) silk, (3) gold and

<sup>3</sup>The importance of subsidiary industries may be gauged from the fact that according to the U. P. Banking Enquiry Committee, which was presided over by Sir Edward Blunt about one-third of the tenants owe their freedom from debt to the pursuit of subsidiary occupations.



silver thread, (4) brass ware and bell-metal utensil manufacture, (5) biri making, (6) mat and rope making, (7) extraction of oil by means of the village oil presses, (8) pottery, (9) crude tanning etc., etc.

Most of the cottage industries in these provinces are in a decaying condition and it is very necessary that steps should be taken to improve them. The difficulties of a cottage worker are many. In most cottage industries the main cause of deterioration is want of cheap credit. Not only are the artizans handicapped in selling their wares on account of their poverty but the very quality of their production suffers on account of their financial condition. Most of the artizans have been found to be entirely within the clutches of the local mahajans who charge exorbitant rate of interest (75% to 100%) for the sums advanced to them. This means that the cottage workers have to work under the orders of the local mahajans who have no interest in the beauty and excellence of the product. The result is that the artizans lose the incentive to improve the technique of their crafts. The financial needs of the rural and cottage industries may be summed up under three heads—

1. Purchase of raw materials.
2. Working expenses during the period of production.
3. Financial accommodation between the period of production and the final disposal by sale in the market.

The financial agencies available to the artizans are generally—

1. The urban and rural money-lender.
2. The merchant or dealer in raw materials or produce of an industry.
3. The co-operative banks or producers' societies.

4. Government through the department of industries and the co-operative department.

Out of the above agencies the artisans take advantage of the first two to a very great extent and it is in rare cases that the help of the remaining two is sought. As is the case in the various countries in western Europe co-operative credit societies among the artisans have been started in the province on the basis of share capital or unlimited liability or of both, and they have proved useful to their constituents in their own way. But the bye-laws of industrial societies need to be a little more elastic and adapted to the special needs and conditions of different crafts. What is especially necessary is better and more popular banking facilities. The weavers in Tanda, Sandila, Mau, Benares and other important centres are sure to take advantage of co-operative credit societies if proper facilities are offered to them. The artisans ought to be encouraged to buy their raw materials through the co-operative societies or through any other body to which the society may be affiliated. Advances in cash and capital for the purchase of raw materials including improved appliances or looms may be given and the workers should be encouraged to sell their stuff to the societies which offer them their valuable services. Where co-operative organizations lack in initiative and capacity for taking risks trading firms ought to be encouraged to step in between the artisans and co-operative societies.

Almost all the industries in the province stand in need of organization and guidance in the selection of designs and processes. They also need assistance in the diffusion of information about markets and the advertising of their goods. It is encouraging to note that the Government of these provinces have now taken up the question of the resuscitation of cottage industries in hand and that they propose to consider

the question of extending the activities of the Arts and Crafts Emporium, Lucknow, for establishing contact between the products of the cottage and village industries in the province with internal and external markets though their proposals are quite inadequate to meet the needs of cottage industries generally. Co-operative sale societies could also be of much help in opening up markets for the products of rural industries in commercial centres. Any scheme on the lines of that followed in Germany is likely to prove useful. "In Germany there are Associations of small producers which buy raw material for their members in common and sell their products in common. Rural industries in Switzerland, again, are organised on the commercial side into trade corporation with branches in the larger towns."<sup>4</sup> A central trading organization is a great necessity for the cottage industries as isolated industries easily lend themselves to the exploitation by middlemen.

In this pamphlet a brief survey of a few cottage industries in the province has been attempted. It is proposed to issue small bulletins from time to time dealing in greater detail with individual industries existing in the province.

Besides helping the cottage workers who are already in the trade the development of cottage industries is likely to offer a solution for the great problem of unemployment prevailing in the country. Most of the cottage industries mentioned in the pamphlet can be followed with profit by many of our educated young men.

Recently the Government of Bengal in order to relieve unemployment among educated youths have selected a few small scale industries requiring very little capital (Rs. 500 to

<sup>4</sup> Refer Report of the U. P. Banking Enquiry Committee 1929-30, Vol. I., pp., 256-7.

700) and have started giving instruction in them. The industries selected by them are—1. Brass and Bell-metal utensils, 2. soap, 3. cutlery, 4. pottery, 5. husking of paddy, 6. hosiery, 7. umbrella making and 8. shell bracelets.

The organization of small advisory committee consisting of the local officials and non-officials in each district of the Province is likely to guide and help our Educated Youths in this matter.

The following is a list of the village industries which are followed in the districts of the United Provinces—

- ✓1. Tat patti weaving.
  - ✓2. Basket making.
  - ✓3. Rope making.
  4. Mat weaving.
  5. Gur making.
  6. Cotton ginning.
  7. Tobacco manufac-  
ture.
- } in areas which grow these crops.
8. Hand spinning.
  - ✓9. Hand weaving.
  - ✓10. Crude tanning.
  - ✓11. Shoe making, lea-  
ther straps and  
water bags.
- } are the secondary occupation of a Chamar.
- ✓12. Earthen vessels, Brick and Tiles, pottery.
  - ✓13. Repairing of agricultural implements, bullock carts.
  14. Fishing—followed by Kahars, Kewats and Mallahs.
  15. Carpet weaving—important rural industry in Mirzapore district and in the villages which lie on the ancient pilgrim route to Benares, Allahabad and Bindhyachal; carpet weaving also exists in several villages in Jaunpur, Allahabad and Benares districts. Hindu weaver follows it as subsidiary to agriculture—but Mohammedan weaver is not a cultivator.

16. Poultry rearing in Saharanpur, Muzaffarnagar, Bareilly and Barabanki.
- ✓ 17. Cocoon rearing and tussar weaving in Mirzapur.
- ✓ 18. Extraction of honey in the hills.
- ✓ 19. Lac culture and Shellac manufacture in Mirzapur and Bundelkhand.
20. Flower gardening and scent manufacture.
21. Sheep rearing.
22. Blanket weaving.
23. Oil pressing.

I now propose to take up each industry one by one and deal with a few particulars about them.

### 1. Tat Patti Weaving

This industry is carried on in the following districts of the United Provinces as a subsidiary occupation to agriculture—

Shahjahanpore, Partabgarh, Bareilly, Fatehpore, Bijnore, Azamgarh, Basti, Sultanpore and Barabanki.

#### *Basti district*

In this district this industry is located in villages mentioned below. Tat patti weavers earn about -2|6 per day.

<i>Name of Village</i>	<i>Number of families (concerned)</i>
1. Gagargar.	64
2. Bunda bazar.	18
3. Kirpalpur.	9
4. Teimha.	8

Tat is sold in local markets or is purchased by the dealers of Menhdawal (Tehsil Khalilabad, District Basti) who visit these villages periodically for this purpose. Tat patti is made out of "Sann" fibre. The estimated annual outturn of patties is worth 5,000 rupees. The raw material does not seem to be

available locally but is imported from village Birhar in Fyzabad district.

#### *Sultanpore*

The chief centres of this industry in this district are Bishesherganj, Beheliapur, Derhpassar, Tarapur and Gauriganj, and the number of persons engaged in this industry is about 100 men and 400 women. They produce over 4000 Mds. of sutli out of which over 50,000 Tat patties are woven. They calculate their wages as -|4|- per day for sutli weaving and -|8|- to -|10|- a day for weaving Tat patti. The weavers have sometimes to borrow money for purchasing the raw material from Mahajans who charge interest at about 37½% per annum.

#### *Barabanki*

The production of Sanai in the district is about 4,000 Mds. only. Only a negligible portion of the crop is converted into Sutli and Tat patti. The industry is carried on chiefly in Nawabganj.

#### *Azamgarh*

The district produces about 65,000 Mds. of Sann fibre. The following table gives the estimated number of families which manufacture Tat patties—

Village	Tahsil	No. of families
Atra th	Ahraula	15
Dampur	Ditto	5
Madepur	Ditto	90
Serwa	Ditto	55
Nibuabib	Ditto	25
Atehra	Ditto	50
Patadhan	Ditto	5
Baheliapar	Ditto	22
Amari	Ditto	100
Mijhuri	Ditto	..

Village	Tahsil	No. of families
Darcha .. .. .	Ahraula ..	15
Daryapur .. .. .	Ditto ..	15
Jalalpur .. .. .	Ditto ..	20
Raipur .. .. .	Ditto ..	20
Bhimakol .. .. .	Ditto ..	5
Marcha .. .. .	Ditto ..	25
Takiya .. .. .	Ditto ..	30
Kotmarcha .. .. .	Ditto ..	30
Moiea .. .. .	Azamgarh ..	60
Total ..		587

The annual outturn is estimated to be 31,000 patties consuming about 3,100 Mds. of Sann. Almost the whole of the produce is exported to Calcutta or Cawnpore. The work brings very little income to the family, hardly 1 rupee a week.

#### *Bijnore*

About 7,000 Mds. Sann is utilized for the manufacture of Ropes and Tat patties. Tat patties are used in the sugar refining industry. No Tat patties are exported from the district.

#### *Fatehpore*

The manufacture of Tat patties is carried on in villages specially those surrounding Bindki. About 30,000 patties each measuring 9'x8" are annually manufactured in the district. It takes one man about 3 days to weave a patti of the above dimensions and a daily net income of a weaver is estimated to be -|5|- . Sann is available in the district to the extent of about 24,000 Mds. The manufacture of patties goes on all the year round, but the sale is brisk in winter and after the Holi festival. The villagers sell these patties in market on market days.

#### *Bareilly*

The district produces about 30,000 Mds. of Sann fibre.

Very little Tat patties are made locally. The greater amount of Sann-hemp is exported from the district.

#### *Partabgarh*

The chief centre of this industry in the district is Garwara about 6 miles north-west of Partabgarh. About 800 persons are engaged in this industry. They produce in 10 months during which the work lasts over 3,000 Mds. of Sutli which is woven into about 38,000 patties. The daily earning of a workman comes to between -2|- and -3|-. The patties are brought to the markets where they are bought by the Bhats of Partabgarh for export to Cawnpore, Tarai districts of Lakhimpore and Bahraich and also to Calcutta. The district produces about 70,000 Mds. of fibre annually.

#### *Shahjahanpur*

There are about 90 families of Kahars in the district who make Tat patties out of Sann-hemp. Twenty families are in the Tilhar Tahsil scattered over different villages. The production of Sann in the district is estimated to be 13,000 Mds. The daily earnings of a family by weaving small patties (each 27'×9") are calculated to be as follows—

	Rs.	a.	p.
Sann 3¾ seers .. .. .	0	11	0
Spun in two days woven in one day, sold for	1	8	0
Earning for three days .. .. .	0	13	0
Earning for one day .. .. .	0	4	0

The industry, as it is carried on at present, needs much improvement. The following suggestions for its improvement may be worth considering—

(a) Co-operative credit Societies for financing the weavers at the time of emergency.

(b) Introduction of some simple machinery for crushing the fibre and for spinning.



- (c) Looms for weaving wider widths.
- (d) Retting and cleaning the fibre in purer water.
- (e) Using waste Sanai for making other articles such as ropes, chhinkas, and money-bags.

Several experiments to devise a suitable machine which could weave a bigger width and at the same time produce more cloth were made at the Central Weaving Institute, Benares. I give below an extract from the note on Tat patti weaving by a member of the staff of that Institute. It will give an idea of the difficulties experienced in preparing a suitable machine for this industry.

"Our chief difficulty was with the uneven hand-spun yarn and its fibrous nature which did not allow the shed to open properly for the shuttle to pass through as these fibres used to stick with the corresponding warp ends. Another difficulty was to find out a suitable winding arrangement for the woven cloth on some roller which may not interrupt the weaver from doing his work when the diameter of the roller is increased. With mill spun yarn we had no such difficulty and we can weave on our ordinary shuttle (fly shuttle) with some changes with great ease, but its texture will not be the same on account of the difference between the hand and mill spun yarn. After three repeated failures in removing the aforesaid difficulties we have been able to bring out a machine which gives the desired effect.

The machine is like an ordinary fly shuttle loom. The only difference is in its construction. It is a heavy sley to effect a good beating up of the weft and is capable of holding a big shuttle so that the weft may last for some time. The cloth roller is set inside the pit which removes the difficulty of winding the cloth. The warp is gaited up in usual manner. The healds are connected to the cloth roller and treadles. To maintain proper tension on the warp special

arrangement is made. The threads which are drawn through the separate healds are also tensioned separately. Some alterations have also been made in plain drafting which allows the shed to open properly and the threads are prevented from twisting and catching each other."

## 2. Basket Making

This industry is carried on in the following districts of the province—

Etah, Hardoi, Aligarh, Pilibhit, Moradabad, Gonda, Almora, Naini Tal, Allahabad, Lucknow.

### *Moradabad*

There are about 1,300 persons (men and women) actually engaged in Basket making and similar other industries. Since "Jhau" is plentiful in the Ganges and Ram Ganga Khadirs, the making of Jhau baskets is a common subsidiary occupation of the people in the neighbouring villages—the Aherias being specially clever in this craft. Baskets are also made though in small quantities from Khajure (Date), mulberry, arhar, dhak, kapas stalk and bamboo splints. Only plain baskets are made to meet the local demand. No attempt is made to manufacture artistic baskets from "Sink". The manufacture could be easily taken up by middle class women as a home industry.

### *Etah*

Baskets are made at Soron from Jhau, Arhar, Bamboo and Khajure.

### *Hardoi*

Villagers use Jhankar (Arhar plant), Jhau and Munj. The material commonly used is Jhankar. Jhau baskets are common in Pargana Katiari where Jhau grows in abundance. Munj baskets are not common, but are made occasionally by

Kurmi women and form an important item of their marriage presents.

### *Aligarh*

Ordinary bamboo baskets are made by Bansphors and Bhangis. The villagers generally make arhar baskets for their own use.

### *Pilibhit*

About 50 families of a special caste of people known as Bansphors, are engaged in the manufacture of bamboo baskets mostly used for packing fruits. Hilly bamboos are imported through Tanakpur. The following table shows the different sizes of baskets, cost of labour, and material prices etc.—

Size of baskets	Price of each	No. of baskets made from Bamboo worth rupee one	No. of baskets made in a day by one man
15" diameter	0 3 0	8	5
20" "	0 4 0	6	4
25" "	0 5 0	5	3
30" "	0 8 0	4	2

Baskets are exported to Bareilly, Shahjahanpore, Bisal-pore, Puranpur etc., from where customers come and make wholesale purchases.

Besides baskets for packing fruits, baskets for domestic purposes, for keeping poultry (tapa), country scale pans (palras) are made mostly for local use. The average earning of a man in this industry is about eight annas per day.

### *Gonda*

This seems to be an important industry of the district, considering the artistic character of the articles turned out.

Ornamental Cane pitaras circular in shape with a dome-like covering over it are made. Cow-dung mixed with earth is plastered over the surface both inside and outside with a sufficiently thick layer of paper stuck on to it. After a thick coating of green or red colour over the paper, ornamental designs of flowers and creepers are drawn out with a small hair brush in different colours. These boxes are made in different sizes with proportionate heights. They are generally used by villagers during marriages. The industry is carried on by a few families in villages Utraula and Balrampur, Srinagar and Visrampore. Doms generally make the pitaras while the painting is done by a separate set of people. The sale is all local. The earning of a worker in this industry is said to be about Rs. 25 a month.

#### *Naini Tal*

Basket making is an extensive industry of this place. Baskets vary in designs and are much in demand for exporting fruits. Reed baskets are commonly made. Tharu women at Khatema make some ornamental baskets out of Kans grass and wheat straws. The Tharus being principally rice cultivators work at this industry during leisure hours.

#### *Almora*

This is an important industry of the district inasmuch as about 1,500 workers are engaged in making baskets and pitaras from ringal-bamboo and reeds. The important centres of this industry are Goriphat and talla Johar, malla and talla Danpur, Khol, Nagila, Lothal, Odura, Nakuri. Doms are the principal workers in this industry who carry it on as a subsidiary occupation to wool spinning and blanket weaving for six months (June to November) in the year. These baskets and pitaras are popular in the district for their

durability. The neighbouring forests supply the raw material. The total annual outturn of baskets and mats is estimated to be 45,000 baskets and 22,000 mats. The producers earn about Rs. 12 per month on an average in this industry.

#### *Allahabad*

Bamboo baskets are manufactured in the city as well as in the neighbouring villages such as Sahson, Bhopatpur, Bagai, Kaserna, Phulpur, Soraon and Handia. Allahabad being a place of pilgrimage the sale of such baskets is enormous. Women take part in this industry. The marketing system is that the basket makers get advances from the dealers and sell their products to them at contract rates.

#### *Lucknow*

This industry is carried on in various mohallas of the town on cottage industry basis.

It appears from the above that basket making is commonly followed in most of the villages of these provinces. Ordinary baskets are generally made. If an attempt is made to introduce artistic designs into this industry it is possible to create a greater demand for the production of the villagers outside their own homes.

### **3. Rope Making**

This industry is almost universal in villages since fibre of good quality is available everywhere. With a view to give an idea of the condition of this industry I am taking up a few districts where it is being extensively followed.

#### *Sultanpore.*

About 10,000 maunds of munj is worked up in the district. It grows near lakes and rivers—the sandy soil being specially favourable for it. Valuable rope or string is made

out of the munj. At places thicker ropes are also made which are used for tying cattle or taking out water from wells. About 900 workers (men and women) are engaged in the manufacture of munj, ban and ropes. The earning of a man is said to be between four to six annas a day. The chief centres for the sale of ban are Kadipur and its neighbouring villages, Sultanpur, Isauli and Shukul-ka-Bazar. The work lasts for six months—from Magh to Asarh.

*Pilibhit*

About 400 families, mostly Bhistis and weavers, are engaged in the manufacture of baib strings and ropes in their spare hours. Baib is obtained from the neighbouring forests in October every year. Women of the family help in the manufacture of string and rope. The average earning of a man in this industry is about six annas a day. The manufacturers export their stuff mostly to Amritsar, Lahore, Lyallpur, Gujranwala and some other large towns of the Punjab.

*Naini Tal*

In this district also ropes are made from baib grass.

*Almora*

In this district the ropes are made from hemp.

*Etah*

Munj grows abundantly in the Ganges Khadirs of Kasganj and Aliganj tahsils of the district. Thousands of maunds of munj is produced every year. Ban string is twisted out of the munj. Thin and thick ropes are also made out of it by Bhistis, Chamars and Habooras and sold to shopkeepers by hawking in the bazars. Work stops during rains. Women usually twist ban. Cultivators make ropes for their own use themselves.

*Bijnore*

Sann hemp is used in this district for the manufacture of ropes and strings. About 7,000 maunds of hemp is absorbed in this industry. Munj is also used for making ropes.

*Bara Banki*

About five to six hundred persons (men and women) are engaged in this industry in their leisure hours. Kewats and Mallahs are the principal castes which follow the manufacture of munj ban all along the Gomti in the district. The daily earnings of a workman in this industry are said to be about four annas.

I have mentioned the cases of a few districts only, but this village industry is almost universal in the province. The following lines of improvement as suggested below may be of some help to this industry—

- (a) If a rope making machinery of a simple type is introduced the production is likely to increase and more evenly and firmly twisted twine obtained.
- (b) Attempt should be made to make use of the by-products as far as possible—Sarkanda for Chiks, Mondhas, Baskets, Sieves, Nechas, Tili or "Sinkh" for chiks and fine sieves.
- (c) There should be an organization on co-operative principle for facilitating the marketing of the products of the villages.
- (d) The fibre as it comes into the market is rough, rooty, dirty and muddy. This kind of fibre is condemned in the trade, and there is very little demand for articles made out of it. If ropes

are prepared with superior kind of fibre it is likely that the industry will improve. The importance of retting in improving the fibre can never be too much exaggerated. It helps the disintegration of the structural parts of the plant by giving rise to bacterial fermentation.

#### 4. Cocoon rearing and Tussar Weaving in Mirzapur

Silk cocoons are collected by the aboriginal kols, Bhuyas and Dusadhs from the jungle tracts in the south of Mirzapur. These are brought for sale to the Ahraura market. Cocoons are collected in the months of September and November. The November crop is superior as the cocoons are larger and contain more silk. About 30 lakhs of cocoons are brought for sale every year. The prices of cocoons is about Rs. 12 per thousand. About 25 families of Patwas work in silk at Ahraura (Village). They buy the cocoons, spin silk yarn and weave cloth from it. The daily earning of a patwa in this industry is about Re. 1. This industry is, however, said to be declining for want of a proper system of sericulture in the jungles.

#### 5. Shellac manufacture

Mirzapur district is practically the only centre of this industry in the province. About 1,500 persons are engaged in it. About 2½ lakhs maunds of crude lac is imported in the district from which about 1½ lakhs maunds of shellac is manufactured and exported. The forests of Mirzapur yield only a small quantity of crude lac—this accounts for an extensive import of this material from Behar, Central Provinces, Berar and Assam and also from Sindh and the Punjab.



In Mirzapur two crops are gathered: one in May and the other in October.

The supply of raw material is very irregular. A more systematic and extensive cultivation is necessary. Shellac is useful for varnish and paint industry.

The forests of Jhansi and Banda districts abound in trees known as Dhak and Ghont on which lac can be successfully grafted. But no attention has so far been paid to its cultivation. Lac is also obtained from various trees growing largely in Bhabar and Tarai regions of Naini Tal district. There is no culture of the lac insect. It grows naturally. Approximately 500 maunds is the maximum outturn. It is exported to Mirzapur. Only a small portion of it is locally sold to bangle makers and Bhotias who extract red colour from it.

## 6. Extraction of Honey

This industry is followed mainly in the hilly districts such as Almora, Naini Tal, Garhwal and also in the Jhansi and Allahabad districts in the plains.

No systematic and scientific apiculture is undertaken in any of the districts mentioned above, but a large quantity of honey is gathered from the beehives both in the forest area and outside it. Both wild and domestic bees yield honey but the white honey of the autumn season produced by the domestic bee is the best. Bee keeping is carried on by villagers in the hills. The method of bee farming adopted by villagers in the hills is as follows—

Big holes are made in dead trees or crude wooden boxes are fixed up in green ones for the purpose and bees are allowed to gather honey in them.

The Lalitpur sub-division (Jhansi district) abounds in beehives. Saunriyas gather honey. The annual collection of

honey is about 150 maunds. In Allahabad district honey is obtained from the hives in the hillocks in Barokhar and other villages in Tahsil Meja on payment of a royalty to the Raja of Manda. A few Koles are engaged in this industry.

Apiculture should be encouraged on scientific lines among the agricultural classes and modern hives with moveable frames and honey "extractors" should be introduced. The most favourable locality for apiculture is the place where honey yielding flowers grow in abundance.

### 7. Pottery

The pottery industry of the province is divided into three sections namely—(a) the ordinary rough earthen-ware pottery made in almost every village for local consumption. This consists of articles such as Surahis, Handis, Cups, and Saucers, Gharas etc. besides ordinary country tiles. The daily earnings of a potter come to between six and ten annas. (b) ornamental pottery such as undertaken in the various districts of the province on a cottage industry basis. Ornamental pottery is carried on in the province in the following places—1. Ballia, 2. Amroha (district Moradabad), 3. Sitapur, 4. Khurja (district Bulandshahr), 5. Chunar (district Mirzapur), 6. Nizamabad (district Azamgarh), 7. Bilgram (district Hardoi), 8. Konch (district Jalaun), 9. Koratappa (district Gorakhpur), 10. Hapur, (district Meerut), 11. Miranpore (district Muzaffarnagar), 12. Domaryaganj (district Basti) and (c) clay figures, toys and fruits of the type manufactured at Bareilly, Lucknow, Agra, Bulaqipur, Fatehgarh, Pilibhit, Kashipore (district Naini Tal) and Gonda.

The pottery industry is said to be declining in the province. This "decline is attributed to the inability of the potters to manufacture articles which are durable. The

clays used are poor in quality and require to be mixed with other materials and fired at a considerably higher temperature than is the case at present." The knowledge which the potters possess is out of date. The raw materials used are inferior in quality. The articles produced are, therefore, fragile and poor in appearance. The result of this is that they are sold locally, and it is very seldom that they are dispatched to markets at a distance from where they are made.

"Generally speaking the materials used in the provincial pottery industry are for the most part clays which are obtained locally and to which small quantities of sand, hair, cotton etc. are added." The whole of the work is at present done by hand and no attempt is made to grind the pottery materials to a fine consistency.

Brick and tile making common to all parts of the province, could be improved by better methods of pugging available local materials and firing and will go a long way to establish the need of better houses in the villages.

### **8-9. Crude tanning and Leather manufactures**

This industry is almost universal in all the villages of the province. The craft of tanning is practised on cottage system in the villages of the province by illiterate depressed classes, mostly Chamars. If the village Chamar was trained in the efficient productive methods of tanning his profits would be ever so much larger than what he at present earns. Bag tanning is everywhere followed in villages. The processes in which the ignorance of the modern methods of the common village Chamars is most conspicuous are the soaking, liming and deliming. It has been very often noticed that by bag tanning process the country tanned leather remains untanned at places with the result that as soon as hides are put in water and

the "khari" salt is washed away the hides become hard and stiff. This makes the hides weak and not durable. The inferior raw material available for this industry is a great handicap in the way of its progress. The village Chamars get raw hides and skins either of animals slaughtered by butchers in the slaughter houses situated in rural areas or of animals which die a natural death in villages. A great waste due to careless preparation of hides and skins is noticeable in the leather trade. Defective flaying which consists in cutting holes in hides and skins and in 'scoring' or 'siding' i.e., (cutting holes into the hides without going completely through) reduces the value of the raw material to a very great extent. As a result of this careless flaying (1) by inexperienced boys, (2) with too much pointed knives with uneven edges, (3) performed in insufficient light in great haste, scorings and bad cuts appear which damage hides considerably. The following suggestions are offered for consideration in this connection:—

(a) The hide and skin should be taken off immediately after the death of the animal. It is a general complaint of the tanners that village Chamars allow the dead animal to lie for hours on the ground in the sun before they actually take up flaying of the animal. This practice causes sunburnts and spoils the hide.

(b) All the fat adhering to the animal should be detached.

(c) The hide should, without the least possible delay, be hung up in an airy and dry place with its hair side inward to enable the air to have its full effect on the fleshy portion.

(d) The hides or skins, under no circumstances, should be allowed to shrink.

Superfluous matter—In villages Chamars intentionally leave out a great quantity of fatty matter adhering to the skins and hides. This practice is supposed to give them a

larger margin of profit as they sell hides by weight. This should not be done as it gives lot of trouble to the tanner afterwards.

**Curing**—Imperfect preservation also causes damage to hides. In villages hides are generally cured by exposure to the sun. The result is that hides get sunburnt and that as they are put into lime pits they go to pieces. The use of inferior salt by village butchers and Chamars in preserving the hides brings on stains on them. In the beginning these stains are not visible, but as soon as the process of tanning is complete they become visible.

If the village cottage industries are to survive increasing competition their development on co-operative basis is highly essential. The cottage workers should be organised into a Co-operative Society of village tanners and it should be affiliated to any Co-operative Bank. Such a bank will suit them as they can get small amount on their personal security. Joint stock banks which advance money on the security of property will never suit them. The industries department may be approached to send out small demonstration parties to villages to train the village Chamars into up-to-date methods of tanning. The district and Municipal Boards also may be approached to effect improvement in the management of the slaughter houses controlled by them. If the country tanning is improved there is every possibility of the manufactured articles being automatically improved.

### **10-11. Hand Spinning and Hand Weaving**

The hand weaving industry is next to agriculture in importance in the national economy of the country. This industry is followed almost everywhere in villages in these provinces though in industrial centres such as Cawnpore, Agra, Hathras etc., the hand weaver has to ply his looms

under the shadow of the mills. The mill spun yarn is chiefly consumed by the handlooms. A very small percentage of the weavers are dealers in yarn and hand made cloth and do the manufacturing of cloth themselves.

The important centres of handloom weaving in the province are as follows—

Name of District	Estimated No. of looms working
1. Moradabad ..	4000 of which 500 are fly-shuttles.
2. Aligarh ..	More than 3000 looms.
3. Bareilly ..	More than 3000 looms.
4. Partabgarh ..	2000 looms.
5. Sultanpore ..	1000 "
6. Barabanki ..	8000 looms of which 1000 are fly-shuttle looms.
7. Azamgarh ..	7000 looms of which 2500 are fly-shuttle looms.
8. Fyzabad ..	5000 looms of which about 500 are fly-shuttle looms.
9. Jaunpore ..	600 looms.
10. Gorakhpore ..	1000 "
11. Badaun ..	5000 "
12. Unao ..	1800 "
13. Kheri ..	900 "
14. Ghazipore ..	800 "
15. Agra ..	3000 "
16. Shahjahanpur ..	2000 "
17. Bijnore ..	400 "
18. Muzaffarnagar ..	(Blanket weaving)
19. Raibareli ..	(Blanket weaving)
20. Benares ..	—
21. Meerut ..	—
22. Etah ..	—

This shows that the number of looms working in the important centres of weaving is estimated to be 48,500.

The general condition of the handloom weaving in the province is as below—

*Financial difficulty*—Cottage workers in this industry always remain indebted to mahajans and pay exorbitant rate of interest for the loan which they contract. In fact they are always crushed under the burden of hereditary debt. Mostly artizans have to work for life for capitalists to whom they are indebted. The capitalist advances raw material, lends out money for marriages, food and other objects and takes back the manufactured articles for sale. The debt being practically irredeemable the artizan is transferred from capitalist to capitalist. The result of this is that he has no incentive to increase his skill as any earnings through his increased efficiency will not go into his pocket but will be set off against his debt.

*Designing difficulties*—It has been invariably noticed that in villages only coarse cloth such as garah and gazi is chiefly woven. The weavers do not pay proper attention to the weaving of stuff as may suit the modern taste and fashion. Although in some places the weaving on handlooms comprises a wider range of articles yet it is not to the extent to which it ought to be. It should be far more universal.

*Sale organisation*—Among the cottage workers there is no sale organisation at all. This involves an unholy waste of a good time of weaver who has to waste a deal of time not only in preparing the warp and purchasing yarn but also in selling his production. He has to roam about from village to village visiting fairs etc. in order to dispose of his goods.

*Suggestions for improvement*—Although handloom weaving has been badly hit by the competition with the power factories yet it has survived and has been able to hold its own in special lines. Government has also done its best to improve this industry by the introduction of the fly-shuttle looms and popularising the use of the dobbies etc. by the institution of weaving schools and by industrial co-operative societies,

yet the success achieved in this connection has not been quite appreciable. The problems which confront a weaver are increased output in order to lower the cost of production and the continuity of work throughout the year and also the saving of unremunerative labour in various processes by securing ready-made warps and wefts as well as the marketing of the products for him. For this purpose the creation of an organisation society in every district centre linking it with the industrial societies in rural areas and the formation of industrial stores at Head-quarters of a district connected with organizations in the mufassil to push sales are absolutely necessary. Such an organization should be co-operative in character.

The weavers at present mostly produce the same varieties of cloth as their ancestors did a hundred years ago. They should be encouraged to produce goods for which there would be no competition from mills and factories. The following classes of fabrics can be taken up by handloom weavers without any fear of competition with the mills. These include Dhotis of various kinds, Kimkhwab of gold and silver thread, silk saris with silver and gold-thread, silk saris fine with ornamental borders, unmilled blankets, coarse gray, fine with or without designs, lohis, shawls, rugs coarse with designs, cotton and wool mixed fabrics like blankets and coatings of different weaves. The primitive system of peg warping is still in practice for the preparation of warps. The introduction of a suitable warping and sizing machine is necessary in the interest of this industry.

## 12. Wood Working Industry

A village artizan occupies an important position in a village inasmuch as he occasionally renders help to agriculturists and their children. In almost every village of the



province carpenters who are partly agriculturists help in repairing agricultural implements and make articles for the use of the agriculturists.

The following districts are the centres of the wood working industry in the province:—1. Pilibhit, 2. Saharanpur, 3. Muzaffarnagar, 4. Unao, 5. Farrukhabad, 6. Ghazipore, 7. Benares, 8. Ballia, 9. Bulandshahr, 10. Shahjahanpur, 11. Moradabad, 12. Aligarh, 13. Bareilly, 14. Hardoi, 15. Azamgarh, 16. Etah, 17. Barabanki, 18. Almora, 19. Mainpuri, 20. Bijnore.

The condition of this industry at places mentioned above is as given below—

#### *Pilibhit*

About 150 persons at Pilibhit, Puranpore and in the neighbouring villages such as Roodpur, Sherpur, Gajraura, Bilahri, Kalinager etc. are engaged in the manufacture of Rahlus, a conveyance driven by bullocks. This industry is carried on a cottage industry basis, some people work at their homes while a few have started small factories with 2 to 4 workers. In villages wages are paid at the rate of -|10|- to -|14|- per day. Sakhu and Shisham wood are utilized for making a rahlu. For making one rahlu about 20 cubic feet of wood worth about Rs. 40|- is required, and 3 men working together can make a rahlu in about 8 days. The price of a rahlu ranges from Rs. 60|- to Rs. 100|-. They find sale in the neighbouring fairs and are also sold locally.

Villagers also migrate during the slack season to the town and take up the manufacture of sandals. These are sold locally and are also exported to the Punjab.

#### *Saharanpur*

There are about 6000 wood workers in the district out of whom about 250 are wood carvers, 200 wooden

combmakers, 100 makers of musical instruments, 70 makers of the means of transport and 150 engaged in furniture industry and the rest are town and village carpenters and smiths.

*Walking Sticks*—Forest people cut sticks from the forest tree branches, shrubs or sleepers and make crude walking sticks out of them. These crude sticks are brought to Saharanpore and sold to the manufacturers at Rs. 5 per dozen. The manufacturers then do the smoothing, straightening and polishing.

#### *Muzaffarnagar*

The district possesses about 4000 carpenters of whom a few are engaged in making carts, wheels, dolas and similar other means of transport. A few carpenters are engaged in making furniture. The village carpenters who carry on this industry subsidiary to agriculture mostly help in repairing agricultural implements. A few carpenters at Kairana make blocks for Calico Printers. A little amount of lacquered work is done at Jalalabad and Thana-Bhawan. Plain and lacquered bed posts are chiefly made and sold locally.

#### *Unao*

Carts, doors, boxes and ploughs are made in villages throughout the district. The important centres of this industry are as follows—

1. Hilauli, 2. Gulharia, 3. Gajauli, 4. Chaksirian, 5. Mawail and 6. Hardi in Purwa tahsil; Unao, Rawal, Raipur buzrug, Kurari, Deeh and Gadankhera in Unao tahsil; Safipur, Ugu, Omar, Korait, Tikia Nigohi, Bangermau and Atrrohni in Safipur tahsil.

#### *Farrukhabad*

Wheels, Bahlis, Doors, Chaukhat-bazu and Ploughs are generally made in the district.

### *Ghazipur*

There is no industry in wooden articles in the district. Carpenters work in almost every village and help in the manufacture and repair of agricultural implements.

### *Benares*

Wooden toys are made at several places in the city on cottage industry basis. Besides the locally manufactured lacquered toys a large quantity of toys are imported from Ahraura (district Mirzapore) and sold in the Benares market.

### *Ballia*

The manufacture of Palkis is carried on by about 25 families of carpenters at Sahetwar. These Palkis are taken by carpenters to the various neighbouring fairs for sale.

The industry is declining due to a change in the tastes of the people.

### *Bulandshahr*

In villages carpenters are engaged in making village carts. It is only in the town that a few carpenters are engaged in making ekkas, furniture and musical instruments such as reed pipes.

### *Shahjahanpur*

A little amount of turnery work is done at Tilhar (district Shahjahanpur). The manufacturers mostly make bed posts, and sometimes Dholaks. At Tilhar this industry is in the hands of dealers, for the carpenters have not got enough means to carry on the business independently. They work for the dealers on piece wages.

### *Moradabad*

Country carts are only made in the district. The industry centres at Amroha (district Moradabad) where

about 100 "ruths" are made annually (these being sold chiefly at the Garhmukteshwar fair at Rs. 150 to Rs. 300 each) and at Chandausi where about 500 "ruths" are made annually (these being sold chiefly at the Rajghat fair at Rs. 30 to Rs. 50 each). At Chandausi there is a considerable manufacture and export of "Khat pattis" also. Amroha is the centre of turnery and lacquer work in Moradabad district. The articles turned out chiefly are:—1. Dholaks, 2. Dibbas, 3. Toys, 4. Plain Chaklas and 5. Phalwas (wooden basin for keeping articles of food). The articles are poor in design and finish—hence do not attract the fancy of children.

#### *Aligarh*

Cart wheels are generally made in Hathras (district Aligarh). These are sold to the owners of bullocks or camel carts or thelas in the neighbouring villages. The tools used are very crude. The industry is of local interest only.

#### *Bareilly*

Some country carts are made in villages specially at Aonla and taken for sale to Soron, Rajghat, Kakora etc., on the occasion of fairs.

#### *Hardoi*

Carved and plain doors, bullock carts of various designs, boxes and ploughs are made at various places and sold locally and in fairs. Wood carvers of Sandi, Malavan and Bilgram are above the average. Besides these places the carpenters of the following places are good workmen and can make good articles—

Shahabad, Basitnagar, Jaura, Alamnagar, Udranpur, Kursenda, Itara, Pihani in Shahabad tahsil Mahammadpur, Alampur, Kasraul, Beniganj, Bhainga, Barraghuman in Sandila tahsil, Kaundha and Itaura in Hardoi tahsil.

*Azamgarh*

The ordinary carpentry work is seen everywhere in the district, but 30 families of carpenters are in Mau, 8 in Kopaganj, and 6 in Adri, make fly-shuttle looms. A carpenter earns about As. 4 a day in this work. These looms were exported to Ballia, Ghazipore, and Gorakhpur, but the export has now considerably fallen.

*Etah*

Carpenters are seen in every village making ordinary articles of domestic and agricultural use. Some good articles are seen being made at Merchara in Etah tahsil where Shisham wood is available in abundance. These articles consist of office boxes, ladies' toilet cases and Qalamdans.

*Barabanki*

Nawabganj in Barabanki district manufactures ekkas, tongas, tables etc. Wooden sandals of various qualities are made by a few carpenter families at Tikaitnagar, Nagapur and Nitmau. These are made chiefly for export. A carpenter is said to earn about Rs. 25 a month in this industry.

*Almora*

Wooden jars are made chiefly by Doms, who live in Athgaon (Walla and Palla) and Tala Danpur. They are also made by a wild tribe called Routs, who live in villages Pathyuli, Routeli, Baigaon, Koli, Maharagarh, Chama, Hunra and Kheta in Patti Dindihat. They make wooden jars, bowls, and small wooden cups. Some carpentry is also done in the interior. In Patti Dindihat, there are a few carpenters who are noted for good carving work. Orgaon is also famous for skilled carpenters.

*Mainpuri*

Kuraoli in Mainpuri district is famous for Tarkashi work,

and the chief articles made are sandals, toilet cases and office boxes.

### *Bijnore*

Nagina in Bijnore district is famous for its ebony work. Ebony wood is obtained from the forests near Mirzapore, Benares and Arrah.

## 13. Hardware

The manufacture of brass and copper wares is carried on in the villages of the following districts in the province—

1. Partabgarh, 2. Sultanpore, 3. Meerut, 4. Gonda, 5. Fyzabad, 6. Kheri, 7. Rae-bareli, 8. Muttra, 9. Gorakhpore, 10. Basti, 11. Ballia, 12. Bijnore, 13. Moradabad, 14. Shajahanpur, 15. Aligarh, 16. Pilibhit, 17. Etah, 18. Muzaffarnagar, 19. Unao, 20. Barabanki, 21. Hardoi, 22. Almora, 23. Mainpuri, 24. Allahabad, 25. Fatehpore, 26. Bahraich, 27. Sitapur, 28. Garhwal and 29. Farrukhabad.

### *Partabgarh*

About 100 Kaseras who are scattered all over the district make bell-metal utensils of ordinary type like patilis and batluis from old broken utensils. Bhawaniganj near Nawabganj possesses about half a dozen families who sell their products in the neighbouring markets.

### *Sultanpore*

About 100 persons are engaged in the manufacture of brass and phul utensils. The most important centre is Bandhua, 6 miles west of Sultanpore, where there are about 70 workers, who make batwas of kaskut and thalis and katoris of bell-metal (Phul). The raw material used is old brass or phul obtained from broken utensils.

### *Meerut*

A considerable number of heavy brass and copper vessels

such as thalis, katoris, batulis and huqqas of galvanized sheets are manufactured at Hapur (district Meerut). Huqqa joints are turned out on a small scale at Pilkhua. Iron tawa, karhais, dols, kolhu and cart accesories are made at villages Bamraulia, Kishanpur, Baoli, Baraut and Nagla, Sanauli of Baghpat tahsil. Some 40 men are engaged in this work and their monthly output is about 250 maunds. The village smith is everywhere busy in making or repairing agricultural implements in the villages.

#### *Gonda*

The making of bell-metal and kaskut utensils is carried on by about 400 persons in the district. They generally work at their own homes though some of them carry on the work on a small factory basis engaging outside labour. There are 3 centres of this industry in the district namely, Khargupur, Balrampur and Machhigaon. Of these centres Kharagupur and Balrampur are of great importance. About 90 p. c. of the workers in this line reside at Khargupur the special facilities of which is trained labour—the industry is said to be of very long standing and the wood is cheap and is easily available in the neighbourhood. It is estimated that a little above 7000 maunds of phul and kaskut is turned out annually in the district. At Balrampur a small quantity of delicate articles of phul and jasta are also made, but imitation bidri work from jasta and brass is made in very small quantity.

#### *Kheri*

Manufacture of domestic utensils is one of the most important industries of the district and Oel and Kaimhara have a good reputation for utensils. Utensils of kaskut, phul and brass are made from old broken utensils. Besides cooking utensils lota, glass, huqqas, cups, trays and spoons are also made. The workmanship of Kaimhara is good but the amount of

work at Oel is on a larger scale than at Kaimhara.

*Organization*—At Kaimhara in Lakhimpore tahsil and Sikandarabad in Mahumdi tahsil the actual manufacturer is also the dealer, and with the help of the members of the family and one labourer for working the lathe he carries on all the processes from mould making to finishing. At Oel the work is divided among 3 classes—mould-makers, manufacturers and dealers in ready made utensils, who are also suppliers of raw material. The manufacturers are mostly wage earners and prepare things for the dealer out of material supplied by him.

*Suggestions for improvement*—The industry does not suffer much from foreign competition, but lighter vessels of Moradabad and Surat may prove a rival. Heavy articles are prepared for cooking only, but for other purposes elegant and light vessels are preferred. Co-operative organization of workers and the purchase of raw material on co-operative lines might be of advantage to the manufacturers.

#### *Shahjahanpur*

Brass wares are made at Pawayan and Jewan in the Pawayan tahsil and Miranporekatra and Tinnagar in Tilhar tahsil. Batulis and thalis are mostly made, but lotas, katoras are also made at Jewan to a little extent. About 40 to 50 men are engaged in this industry. Tahalis are made at Miranporekatra and Tinnagar only. About 15 to 20 persons are said to be engaged in this work. At Jewan and Miranporekatra lotas are made out of phul brass.

*Marketing System*—The workmen, being poor class of people can not afford to stock their goods for a long time and carry on the work of the manufacture. They have, therefore, to sell their products at a slightly reduced rates (2 annas per seer) to the dealers. The workmen also sell their goods by hawking in villages. The vessels are crude in design, heavy in



weight and poor in finish. They are mostly used by villagers and also by the Nepalis.

#### *Etab*

Razors, Scissors and Sarautas are made at Kasganj, Bilram and Tyebpur in Kasganj tahsil by about 12 families and at Aliganj and Rampore by 2 families only. 7 families of Meo in Aliganj tahsil manufacture knives, spears and hatchets also. Locks are also made in small quantities.

#### *Ballia*

Brass and phul wares are made at Turtipar (Ballia District) which is situated close to the important trade markets of Manior, Barhang, Rasra and Aliganj. This industry is followed by about 15 families of Kaseras and Tamerases. Articles such as Farshi, Lota, Glass, Tashtari, Batuli, Oghaldan and bedstead legs etc. are generally manufactured. Iron gagraas are also manufactured in several of the neighbouring villages such as Koripakar, Kulper, Chupra, Jamua, Jarari, Haibutpur, Nagwan, Chatwan, Bhagrasan and Ojhadera and are brought to the Ballia market either for local use or for export to the neighbouring places. The average earning of a man in this industry is between As. 8 to 10 per day.

#### *Muzaffarnagar*

The industry gives employment to about 2,000 persons in the district. The chief work consists in the manufacture of (a) Copper, brass and bell-metal vessels and (b) Iron tools and vessels.

Manufacture of brass and bell-metal vessels—

The chief centres of this industry in the district are Shamli and Miranpur. Trays, cups, kettles and huqqas are

manufactured by casting process. Miranpur has a reputation for its beautiful farshi huqqas.

*N.B.—The introduction of small hand-presses as labour saving appliances in this industry will be of advantage.*

*(b) Iron tools and vessels*

Penknives, razors and nut crackers are manufactured at Kairana in the district. Sandal wood is mostly used for making handles. Sword sticks and sporting knives are manufactured at Batrara by a few workmen who also undertake the repair of guns.

A large number of persons are engaged in repairing and manufacturing (on a small scale) sugar refinery pans and kolhus in various villages such as Khatuli etc. in the district.

*N.B.—A small iron foundry for making kolhus and agricultural implements will be a great asset to the industry.*

*Unao*

The manufacture of metal utensils is an important industry of the district. At Bhagwantnagar alone (Purwa tahsil) there are about 115 shops of manufacturers who make brass thalis and parats by the beating process. The other places where this industry is carried on are Newalganj, Moradabad, Sitalganj and Badarkha Harbans.

In several villages of the district village blacksmiths make iron doles, Karhais, knives, razors etc. in their leisure hours. They carry on this work as subsidiary to agriculture.

*Pilibhit*

A few factories exist in the town of Bisalpur (district Pilibhit) for the manufacture of mills for crushing sugar cane. Phul thalis and hollow tinwares are manufactured on cottage industry basis at Pilibhit.

### *Hardoi*

Moulded metal utensils of mixed metal like kaskut and gilat (an alloy of zinc and lead) are made at four places in the district: Malawan, Shahabad, Hayatganj, in Sandila tahsil and Hardoi bazar, but the utensils made at Malwa, Bhagwantnagar in Bilgram tahsil, are quite good. Pihani in Shahabad tahsil which was called the "Damascus of Oudh" manufactured swords and firearms but at present only knives are being made. The iron workers of the district produce only the agricultural implements. The iron workers of the following places are above the average and can turn out good articles if any order is placed with them—Safargarhi, Pitauli, Jhanjauli, Gajee, Tikari and Rahimabad in Sandila tahsil, Bilgram and Durgaganj in Bilgram tahsil, Pihani Masphana, Chatila in Shahabad tahsil, and Hardoi, Chaunsa, Bharawan, Gopamau, Behta Murtaza Buksh and Railwayganj in Hardoi tahsil.

A few workmen make locks and brass metal boxes at Bilgram.

*N.B.—This industry needs a few hand labour saving devices like the punching machines.*

### *Raebareli*

Mahrajganj in the district manufactures domestic utensils such as batuas etc.

*Organization*—The members of a family all combine to do the work and they engage a temporary man on daily wages at As. 8 per day to draw the lathe when moulding is completed. Iron nut crackers are made in some villages of Dalmau tahsil. They are famous for durability and are inlaid with silver wire in ornamental designs. About 60 lohars in 27 villages carry on the work of tempering steel rods but the

workers of Jalalpur—Dahi, Subedar-Ka-Purwa, Karau Daman, Lachmanpore, Samaspapa and Tikramau are noted for their skill.

#### *Basti*

Domestic utensils of brass are made by the thateras of Bakhira and Biskohar. Bakhira possesses about 128 families of workmen while Biskohar only 4. Bansi in the district is famous for its spears. A few families are engaged in this work and they make spears in 4 designs.

#### *Sitapur*

Almost every village has a blacksmith who repairs agricultural implements but the workers of the following places are considered to be good craftsmen—

*Sitapur tahsil*—Khairabad, Shahpurkariamau, Parrsenhra Saraura, Phalawan, Teri Kalan, Raghunathpur, Reechchcan.

*Sidhawali tahsil*—Sheerganj, Kashipur, Ramdana, Terai Bhandiya Jai Rampur, Neelgaon, Banbeerpur, Mau, Muzaffarpur, Rehdadpur, Seora, Saraora, Palia, Sarwarjalalpur.

*Biswan*—Sewta and Nabikaraila.

Utensils of mixed metals of copper, zinc, and lead are moulded at 3 or 4 places in the district, but the work is done on a large scale at Mahrajnagar and Kutubnagar only: At Mahrajnagar the manufacturers mostly make things for the mahajans on wages, but at Kutubnagar they are all independent manufacturers.

#### *Mainpuri*

Kelai in Jastrana tahsil is famous for knives, pucca sarautas (nut crackers), and scissors. The daily earning of a manufacturer in this line of business is said to be As. 14.

### *Fatehpore*

About 50 persons are engaged in manufacturing kaskut vessels at Bindki and Kora. Batluis and kalsas are chiefly made. Locks are manufactured at Kalyanpur and Daryapur by a few workmen and nut crackers at Kasraon, Rajpur and Ajaiपुर.

### *Barabanki*

Bell-metal utensils are manufactured more or less throughout the district, but Nawabganj and Tikaitnagar are important centres of this industry. About 80 families are engaged in this industry in the district. Hydergarh tahsil exports its wares to Shukul-Ka-Bazar while Nawabganj and Tikaitnagar manufacture articles for local consumption and also for export to neighbouring districts. Iron foundries for the manufacture of sugar mills are centred in Bahramghat though a few are scattered here and there. About 250 persons are engaged in this industry and the annual outturn of mills come to about 500 which are hired to cultivators for the season.

### *Muttra*

Folding brass huqqas of various designs are made at Aroa in Mat tahsil of Aligarh district and at Jait in Muttra.

### *Garbwal*

Copper utensils are made on cottage lines in all the villages inhabited by copper-smiths called Tamotas. About 1000 men are engaged in this industry. The annual earning of a workman is estimated to be 250 rupees. Those living near Srinagar get a little more, as owing to its being near to the market their turnover is comparatively greater. Khukris and daggers are made by a few Nepali workmen at Lansdowne. The workmen undertake repairing work also which goes to supplement the meagre income of a manufacturer.

### *Almora*

The manufacture of copper, brass and iron utensils is carried on at several places in the district. About 200 persons are actually engaged in copper industry. The largest number of them resides in Pattikharahi, while smaller number lives in Pattibaraon, Rithagarh, Barabisi in Pithoragarh tahsil, Gardhtir in Baraon patti, Loharkhet and Almora city. The annual earning of a family is said to be about 250 rupees. Knives are made by a few families in the Niakan village (Palla Kamsyar), 20 miles from Bageshwar; while khukris are manufactured in Askot and Almora by a few persons.

### *Gorakhpur*

About 25 families in Padrauna are engaged in making brass wares. Utensils are sold in retail by the dealers the principal market being Nepal.

### *Bijnore*

Brass utensils, mostly patilis, are manufactured by the casting process at Shanpur (near Najibabad).

### *Allahabad*

Brass utensils are made at Shamsabad, Saraiakil and Allahabad. The brass industry at Saraiakil is losing ground for want of transport facilities, being situated on a kachcha road 10 miles from the Railway Station. The industry as it stands at present is controlled by the Mirzapur dealers who advance money to the manufacturers with their orders. Good strong locks, Mondhas, Teapoys and Kistis having good paint and floral designs are made in Phulpur. The business is in the hands of about 9 lohars.

### *Babraich*

The bell-metal industry though largely concentrated in Babraich city is carried on at several places in the district,

specially Bhinga, Nanpara, Imamganj and Sheopur. Bhinga phul utensils are noted for a long time but the industry has much declined owing to its isolation and bad communication.

#### *Aligarh*

The main centres of manufacture of brass utensils are Hathras and Atrauli. The district possesses about 700 brass workers. Knives and nut crackers are manufactured in Hathras and Jalali. About 100 artisans are engaged in this industry. The daily earnings of a man come to about Rs. 1-8.

The iron-smiths are scattered throughout the district. They manufacture karhais, buckets, taslas, khurpas, spades, chhenis etc. Aligarh is famous for its locks. Besides a large number of shops in the city a large quantity of locks are made in the villages and brought to the city for sale. From most of the neighbouring villages some parts of locks manufactured there are brought to the town for being assembled. All work is done by hand and no machinery is used. There are about 800 skilled workers at Aligarh, Atrauli and Iglas. The average daily output of locks by an ordinarily skilled workman is  $1\frac{1}{2}$  to 2 dozens.

#### *Moradabad*

Moradabad proper is famous for the manufacture of domestic as well as art brass wares. But the manufacture of locks on a small scale is carried on at Dhanaura, tahsil Hasanpur.

#### *Farrukhabad*

The district is a very important centre of domestic brass and copper utensils making industry. The industry is carried on extensively in the city itself. But knives and nut crackers are made at Kaimganj in small quantities.

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