

MR. KASHINATH RAGHUNATH DAMLE

Mr. Damle was the Leader of his group. He was Joint Secretary to the Government of India Ministry of Food and Agriculture, a position comparable to our Under Secretary of Agriculture. During his stay in the United States he received news of his promotion to Director (I am not sure if this is the exact terminology) of the Indian Council of Agricultural Research. This is an extremely significant position in that he will be the over-all administrator of agricultural research and extension in India. His previous positions have been as a member of the Indian Civil Service in Uttar Pradesh, District and Sessions Judge in Uttar Pradesh and Ajmer, Official Secretary to the High Commissioner for India in Australia, Acting High Commissioner for India in Australia, Joint Secretary to the Government of India, Ministry of Food, and he represented the Government of India at a Rice Conference in Singapore in 1950 and visited Peking in 1951 to negotiate purchase of rice and other food grains from China. He is 43 years old and received his university training in India and England in mathematics and science. He is a very able administrator and a very intelligent man. He was held in high regard by the members of his group.

Mr. Damle's suggestions are to avoid over-crowding a program with many short stops and no time to go into details. (See Washington and Tennessee) He also feels very strongly that much of the value of study is lost with too large a group all traveling together. He suggests an alternative method to the group method. (See p. 4) This, I believe, indirectly indicates again the fact that participation is vital to any study and unless it is specifically encouraged it suffers in a large group.

Mr. Damle felt that there was much value in studying visual aids, the organization of Beltsville, and actual practical study with the county agents in a county. His comments on the seminar in the cultural approach to extension work are most interesting.

EVALUATION INTERVIEW WITH MR. B. P. AKHARY
DIRECTOR OF EXTENSION SERVICE
BIHAR STATE, INDIA

Q. When you arrived in the United States what were your personal objectives for this study trip?

A. I would like to see how the extension agricultural division is functioning and in what way, and to what extent we can take up some of the items for our state with advantage. It is a method of working. The ideal behind it and the philosophy of extension judged on the background of what it was before when the extension service was started here would make us realize as to the extent and the procedure we should adopt to suit our conditions. A good deal of this has been explained to us both at Washington and at Knoxville and we are beginning to get at the bottom of the problem. It is very difficult at this stage as to what are the items we can take up but the philosophy seems to be all right and we agree there. (How do you mean?) I mean the philosophy of extension work as I understand is to start the work from where it stands from the time you begin and also to give those items top priority which the cultivators would need to improve their agriculture and general standard of living. (Do you have any other objectives?) What I have mentioned to me are top priority but whereas your extension work has been giving all around orientation for improving the farmers conditions as a whole, I in my state would like to give top priority to the problems concerning increased food production. That doesn't necessarily mean that we should neglect the other items which go to make a farmer's home happy and prosperous, but it only means that we should take up those items as and when the right time comes for their introduction.

The different kinds of farming like grass land farming, row crop farming, truck farming, vegetable growing, etc., we are interested in learning about but most of us, especially those who have been trained in western countries know something about this and it would be very useful to us if the actual working of the extension service workers is shown to us. In other words, instead of a county agent being tacked on to our program, we would have much liked our group to be tacked on to a county agent's fixed program in one or two places so that we could see their normal day to day work. We want to see the actual work of the county agents and how he tackles his problems and the work of the specialist and his work. So far we have not seen this. We have seen some farms and so on but the main objective of our trip has not yet been approached. Dr. Walrath did, however, help us to understand how the different workers work. We have also studied in Washington how the different divisions of the extension service and the federal government work and coordinate with the different states. But we would like to know what is the duty and working of the Director of Extension in each state and we haven't got that yet.

Q. What are some of the problems that you face in extension work in your state?

A. Well, in extension work as I understand here one has to be ready with the useable results of research which could be given out to the farmers with advantage to them. But in my state we have some very useful information on certain items and quite a lot of such recommendations also which may not be taken up by the cultivators because they may doubt their efficacy. So the first thing for us there is to make sure that these recommendations are well proved recommendations which will be taken up enthusiastically by the farmers once they know and see for themselves the results on their own crops and fields. This boils down to that we must have demonstrations of what we recommend conducted on the farmers fields. All these recommendations must be economically sound and must be conducted in a series of items to make the cultivator realize the benefit of adopting further recommendations.

machinery, electrical apparatus, etc., both for his home and the barn or dairy.

Q. Do you have any suggestions for ways the study program in Washington might have been improved?

A. Most of the talks could have been reduced by the elimination of elementary material because before we came here we had been supplied with books on agriculture in the United States and the extension service in the United States. We were in general familiar with the pattern of agriculture, the physical features of the country and the broad outline of agricultural policy. If greater emphasis had been made in the talks of the effect of the type of agriculture on the development of characteristics of people in that area the talks would have been more meaningful. For example, if they had said when in a certain state the major crop is cotton and therefore these are the chief characteristics of the people which result from the occupations which they have followed over several years, this would have been more helpful to us in analyzing to what extent our own characteristics have been formed by our agricultural occupations also. This is what I wish had been developed a little more in the talks. (How would that have been useful to you?) We notice certain characteristics of people. If we now want to plan a new system of agriculture we have to keep it consistent with established features. Also if we have to resettle refugees from one part of the country to another which is thousands of miles away and where agricultural conditions are entirely different from those existing in their former homes we would be able to gauge to some extent at least whether these people would be able to reconcile themselves to their new surroundings. One of our problems is to resettle people who have been evacuated from their native land after partition and they have to be settled sometimes thousands of miles away. Apart from considerations of language and climate the consideration of occupation also is very important. It would be very difficult to settle a refugee from a wheat growing area in a rice growing tract. (Any other suggestions?) On the last day an attempt was made to take four persons from our group to each head of the division, but there was very little time to ask any questions. Therefore, my own feeling is that it became more of a repetition of the same lecture by the head of the division to different groups. If instead of this, every day during the week half an hour had been given for one group to meet such of the heads of the division in whose work they were interested more information would have been elicited without making the process boring to those gentlemen either.

Q. What was the value to you of the study in Tennessee?

A. I was struck with your community centers in Tennessee and the cooperation of both men and women that was sought to be enlisted to make their life fuller. For example, if there was a program for the eradication of weeds, there was also a program for the canning of surplus food. (Anything else?) Of course, the common and generous use of electricity in Tennessee for both home and farm operations; presumably the electric power is cheap and can be used extensively.

Q. Do you have any suggestions for ways the study in Tennessee might have been improved?

A. I thought the program was a little overcrowded with visits to farms and institutes on the same day. One day we saw three farms, then a community center, then a tobacco cooperative center and in the end an electric cooperative. As far as extension work is concerned the visit to the electric cooperative was not of much use. This is a subject not dealt with by agricultural extension workers in India. By stretching the point a little one can say that the principle of cooperation was sought to be shown but the same principle could be seen from the other cooperatives we visited. Otherwise I have no other suggestions except that it was overcrowded. The two most interesting things to me were the community centers

and the tobacco cooperative which was definitely worth the visit. (Why did that interest you?) We have no cooperative for the marketing of agricultural commodities yet except for sugar cane and the result is that three or four big buyers of tobacco, for example, buy the entire crop before it is sown at any price that they can dictate. What happens is that any agent from a tobacco company can come and say to any cultivator who is in need of money that the entire land will be sown with tobacco of a particular type, the seed will be supplied by him, his own office will from time to time supervise the operations and in return for doing all this he will quote a price which will be very much less than what the price may be in the future market six months hence. Thus the cultivator is at the mercy of three or four big buyers. If there is a cooperative marketing organization in the area to which he can take his produce when it is harvested, but which will give him a certain advantage in the beginning with the sowing operations, then he will be getting a better price and not be at the mercy of the cartel. Also of great interest to me was seeing the starting of a wood pulp factory because I am in charge of fisheries, forestry, as well as agriculture and animal husbandry. We are thinking ^{about} a news print factory which made this visit very interesting to me. The necessary research work has been done at our forest research institute and even a pilot plant has been set up to work out the economics so we are ready for the stage of launching a big program for the actual production of news print.

Q What was the value to you of the study in Auburn, Alabama?

A. That was principally a study of the fishery section. As far as the Tillage Laboratory was concerned I thought that we as a group of agricultural officers had little to learn in the sense that that laboratory was essentially meant for either the industrialists interested in the manufacture of tires or government technical experts who would be advising the Department of Industries in our country on suitable material, strength, and design of tires, or the manufacture of agricultural implements. In our country the departments are divided in such a way that the agricultural department assumes that the material recommended by the Industry department for the manufacture of industrial implements or for their accessories has been tested and found suitable for the needs of different types of machines. The agricultural department only designs the implements on the assumption that the material is suitable. The fisheries section was certainly very useful, particularly the manner in which a tract of land comparatively unproductive for agricultural crops had been utilized for the production of another type of food. We have also certain areas where the terrain is undulating but the soil is either not sufficiently fertile or it has a very hard rock below the top soil and it becomes exceedingly difficult and expensive to convert it for agricultural operations. In such areas by the making of dams at different levels it may be possible for us also to increase the production of fish. So far our emphasis on fish production has been on the development of marine fishing and the distribution of the fish throughout the country by augmenting refrigeration facilities. There has been little attempt at the exploitation of sources of inland fisheries except in the state of Bengal where practically every household has a pond at the back of the house and the householders utilize it as if it were a kitchen garden. Similarly, although we have rivers which have a plentiful supply of fish, we have made no attempt at catching the fish and marketing them. Individuals go and catch fairly large quantities of fish and market them in the neighborhood of the residence. That is our present difficulty so if we can utilize land which is at present not productive for any crops for fish culture, the food supply certainly can be increased. The idea which occurred to me was that we could do this thing in certain areas.

I also thought the lecture on visual aids at the API was very useful. Our main drawback in the spreading of technical knowledge among the farmers has been suitable means by which technical methods could be demonstrated and popularized. Here written word is of not much value in my country because at least 80% of the people

are still illiterate. We have to have, therefore, recourse to visual aids and the spoken word, and Professor King who kept the attention of all listeners on his subject throughout his talk demonstrated without any doubt that given a good lecturer and some apparatus which can be manufactured without much difficulty it is possible to interest people in even dry subjects.

Q. What was the value to you of the study in Tuskegee, Alabama?

A. At Tuskegee the Institute has certainly done a good work amongst the Negro population. Perhaps the success of this Institute was due more to the people among whom work was carried on as they were already converted in the sense that they realized that here were people who were out to improve their lot which is not always the case when a government officer goes to any village in India. Quite a number of the villagers are suspicious of the motives of the government extension workers in India because they think that this might ultimately turn out to be merely a device for increased taxation. Here when the Negro extension people went out they were very well accented and their advice was very readily accented. There was the determination and the will among the people who went out among the farmers to emphasize the necessity of better methods and the bettering of living standards. And the people were willing also to accept new methods.

What was the value of the study in Missouri to you?

A. I thought it was an excellent idea to send people out to the counties in batches of three with the county agent and leave it to them to prepare their own program of work and to associate with the farmers in order to find out from them first hand how they presented their problems to the county agent and how they obtain his advice. I thought that much more was gained in this week than in a considerable portion of the rest of the trip. I have a suggestion to make in this respect. We were a group of 23 men from India. Assuming that it was decided to take this group through 8 states during the period of our stay in this country, instead of taking us all together on a tour of all the states, it may have been better to ^{have} divided this group after the initial orientation period in Washington into 8 groups of three each and to have sent the various groups to the various states which were put on our program, one group to each state, for a period of one week. The group assigned to any particular state would tour one county with the county agent without any program drawn in advance. The actual program might be left to the imagination and initiative of the county agent and would naturally depend upon what thing of interest would occur during that particular week within his jurisdiction. Each group would visit as many farmers as it would like, talk to them, find out their difficulties, discuss their problems, and in the company of the county agent try to offer a solution if such could be given. Otherwise see how the county agent himself tackles the problem. At the end of such intensive observation of the one county, the groups would move from their states to the ones immediately above or below them. The new group assigned to any particular state may not necessarily go to the same county as the previous group which had been in that county as that would cause unnecessary inconvenience or additional work to the same county agent. The group following the previous one may go to another county and follow the same procedure. At the end of 8 weeks or so if there are 8 states visited every group would have travelled in all the 8 states and would have had experiences obtained independently and not necessarily alike. At the end of this 8 week period, all the groups could assemble at the place where they are to depart from the country for a group discussion and a comparison of notes. Perhaps in this way every individual member of the delegation would have an opportunity of seeking knowledge himself according to his own requirements. The cost of this method would not, I think, be much more than it was for our trip.

Q. What was the value to you of the seminar in human relations and cultural anthropology conducted by Dr. Spicer in the New Mexico and Arizona area?

A. As far as the actual talk on the living habits and cultural traits of the various types of American Indians were concerned, they were not of much assistance to me, except in so far as they impressed upon me the fact that traditions die very hard in spite of living in surroundings where the culture is very much different. These Pueblo and Navahos living amongst the white Americans with an entirely different culture and a much more civilized way of life did not change their customs or habits which have been approved by tradition. The same happens in our country, too. Villagers have been following certain methods and certain customs for a number of generations without inquiring into the reasons therefore, and although a scientific worker may try to introduce new ideas and have adequate scientific explanation or basis for the same, people who are traditionally inclined to accept the old practice will not easily take to it even though they may be surrounded by those who have accented a new practice. That has happened here so it confirms the universality of human nature. But that was not all that was to be obtained from that week's seminar among the American Indians and the Spanish Americans. It showed to us that people with smaller holdings, poorer education, and educationally more backward offer more or less similar resistance to new ideas as they do in our own country. An individual's acceptance of new ideas has in our own country been found to be much more willing in the case of comparatively more well to do people. Just as in my own country a farmer with an income of 10,000 rupees accepts new ideas much more easily than one with an income of 1,000 rupees, partly because to the former a little loss if it comes by acceptance of a new idea does not have relatively the same importance as a loss of similar magnitude to the latter. In this country also similar results were noted and this observation led me to feel that if in my country extension has not made much headway so far it was not so much the defect of the extension worker as a defect in the mental make up of the subject with which he has to deal. (Do you think that cultural anthropology has any role in extension work?) Anthropology if it includes a study of the workings of the inner mind of an individual would have a useful place among subjects to be taught to an extension worker. If it merely means a study of the customs, habits and culture of a certain group of people without an attempt at analysing how the mind works in the light of these traditions it will not have much value.

Q. In the beginning of this interview I asked you what your personal objectives were for this study trip. Now I want to ask: Did this study tour meet your objectives?

A. Yes. I find that the county agent has a series of meetings with farmers. And in the same way the home agent has meetings with the women in a particular locality where it is the people who are led to talk and the county agent or the home agent assist them to talk and formulate their views in a coherent and concrete manner. This helps the individual farmers to state precisely what their problems are to the county agent who if he has the answer ready at hand gives it immediately or promises to obtain it from the specialist. A system of meetings at regular intervals in the company of the county agent, therefore, should in my country also be made a feature of our extension activity.

I can't say that I have found solution to all the problems that I came with but I have seen someways of how to reach the farmer without antagonizing him or arousing his suspicion that I might not be his friend. Another thing which is most necessary for any program of extension to succeed is the availability of easy credit facilities. These may be made available either by the government or by cooperative credit agencies. In this country both agencies try to ensure that a willing and able farmer can receive easy credit. In my country also we must devise a system by which short term loans for immediate agricultural needs are more readily available.

In concluding this interview I might say this. The impetus to the extension program in India was given by a generous aid made by the Ford Foundation for the establishment of 15 extension projects and 5 training centers for extension workers. Subsequently the number of training centers was increased by 25 more. Thus the period of great activity as far as agricultural extension work is concerned was really inaugurated when the Ford Foundation made it possible to make a beginning with these scattered projects all about the country. Success of the extension work in India will, therefore, be in no small way attributable to the foresight of the authorities of the Ford Foundation who made it possible to make the beginning. The idea of the present trip was mooted after the initial establishment of an administrative machinery of an extension service in each state. It was proposed that those who have to be in charge of administration might profitably visit the United States to see how they have organized their own service so that from the experience of others we might to a certain extent be able to avoid some of the failures.

MR. S. K. DEY

Mr. Dey is Deputy Director of Agriculture and Special Officer for Food Production (Extension) in West Bengal State. He received his university education in agriculture and economics in India and Wales. He has taken great interest in the Extension Plan and has drawn up a scheme for the Pilot Development Project of the Ford Foundation and started the Center State Farm at Burdwan on June 1, 1952. He is 42 years old and is certainly a very thoughtful and enthusiastic man.

Mr. Dey's interview is an extremely interesting one, especially his description of what he feels are some of the problems in extension work in his state.

Mr. Dey's comments on Tennessee are similar to Mr. Dangle's --- too crammed a schedule to get enough details. Mr. Dey did not have an opportunity to live with a farm family in Missouri and feels that this would have been an important experience. He also feels that more time should have been spent in the irrigated areas of Arizona and California where climate conditions were somewhat similar to India. (See p. 8)

Mr. Dey felt that there was much value in the study at Washington, the visual aids in Alabama, low cost rural housing in Tuskegee, and the county experience of working with a county agent in Missouri. Mr. Dey's interview is a very positive one and brings out all through it the ideas he feels have application in India.

EVALUATION INTERVIEW WITH MR. S. K. DEY
DEPUTY DIRECTOR OF AGRICULTURE AND
SPECIAL OFFICER, FOOD PRODUCTION (EXTENSION
WEST BENGAL STATE, INDIA

Q. When you arrived in the United States what were your personal objectives for this study tour?

A. Broadly I had two objectives. First, to study the extension methods used in this country to introduce improved practices and results of research widely amongst the farming population. This included a study of the rural organizations either state sponsored or voluntary organizations by rural people. Second, I was anxious to see myself the use of mechanical power in farming operations. These are the two broad objectives I had. Another thing I was keen to see was the credit system which made it possible for farmers to raise necessary funds at the required moment for their seasonal operations. These are the three that are in the back of my mind. (Would you explain your first objective a little more?) In studying the extension methods of this country I had a view to study closely whether the knowledge of research and improved practices were introduced to the farmers by training the farmers themselves in the colleges or state farms, or by formation of local farmers associations, or by state organizations right down to the villages under the directive and control of the federal and state government. That is a lesson to me. Added to these I also had in view to observe the methods that were applied in extension work as for example, public speeches, movies, demonstrations in farmer's plots, audio visual equipment, etc. When I first started this trip I was not so interested in the system of extension education you give in training in the agricultural colleges but that has gradually come on me and now I feel that extension methods and its philosophy are specialized matters which require specialized training and while all agricultural officers may prove to be good agriculturalists all may not succeed as good extension workers without some training. (Anything else about the other objectives you mentioned?) As conditions of farming are widely different in India than in this country observations on the use of mechanical power may be considered unnecessary by many. I had, however, felt that to introduce improved methods it was essential to build up a few pioneer farmers on modern lines so that in the course of years educated men with resources may be brought into this profession to be able to take up commercial farming on the one hand and to give leadership to the small farmers around. Added to that the question of farm labor has not been easy in my state and some mechanization has always been considered necessary by me. That is the reason why I am interested in looking into this problem.

Q. What are some of the problems you face in extension work in your state?

A. In my state, West Bengal, we have set up an extension organization down to the villages. We have permanent officials for different zones comprising a number of districts, extension officers are in each district, each sub district, in each police station area of the sub districts, and further down to groups of villages. We have in our way attempted to introduce improved practices and results of research through the medium of this chain of officials, but, although we have made some progress, we have not progressed to our satisfaction. The problem, therefore, was to find out what was the specific defect in our system for which, in spite of a hierarchy of officials, we had not succeeded to convince the farmers on the usefulness of scientific methods for improved practices. That is one problem. The other main problem for my state is to find methods for increased production from a comparatively small area and to know the methods of reclamation and soil conservation. The new state of West Bengal is comprised of about 29,000 square miles with a total crop area just over 13 million acres. Our culturable waste land is about one and a half million acres which is why we are interested in reclamation. On this area of land

we have the responsibility to feed a population of about 25 million and added to that we have the burden of a refugee population of about one and a half million from the areas now belonging to Pakistan. While the land area for the newly formed state was not enough for the resident population itself we were faced with the problem of accommodating an additional population. The utilization of this additional population was all the more difficult as the waste land areas were mostly eroded zones unsuitable for cultivation at the moment.

Improvement of production methods becomes all the more difficult with farmers having only small areas for each, perhaps scattered at different places, and consequently who do not feel enthusiastic about increasing a pound or so more in yield by additional investment as even if his yield increases slightly his material position does not improve considerably. So this small area is one of our greatest problems. So far what I have seen convinces me that one of the main reasons for the success of extension in this country was due to the fact that the farming population had taken the initiative of forming and running their own rural organizations. Under the lead of the extension workers and in cooperation with the institutions connected with extension work these organizations came about. My feeling is that much of the success in the rural areas has been due to the fact that the rural population has taken the responsibility of improving their own areas and their standard of living and have made the best use of the advice they received from the extension agents and the authorities concerned. I feel this is where we have stepped off in spite of our organization down to the villages and the organizations that we have should now be merged more with voluntary rural organizations and the initiative now taken by our officers through planning and preaching should now be passed over to the local people in each area and all plans or actions should be entrusted upon them and their local leaders, the extension workers remaining as merely friends and guides helping these organizations to obtain the requisite material assistance and knowledge in the right time and in the right places whenever required. My thought is that the organization we have built is now from the top going down to the bottom, while the activities in this country are initiated at the bottom and consolidated at the top.

What I feel is on our return we should select pilot zones in each of our districts, organize rural societies such as 4-H Clubs, farmers production societies, etc., and have the local societies themselves under the supervision and guidance of the state extension officials and also insure execution of the plans by the local people themselves with the officials merely rendering the requisite assistance possible for implementation of the plans. I feel that these rural organizations should form the backbone for all development activities in the development activities in the rural areas and should be entrusted with the responsibilities without any reservation and I am inclined that formation and operation of these societies in the rural areas all over the states should be our first line of action. That is the solution of the problems of the channel through which we should carry knowledge to the people to be put into practice.

As regards introduction of mechanical power I have no misconception that such costly equipment are beyond the reach of ordinary subsistence farmers of my state. While I intend to encourage the newly formed commercial farmers, to take to more of mechanical cultivation, if necessary even by change of the cropping system to suit the profitable use of the mechanical equipments, I also feel that these labor saving devices should be brought to the use of the subsistence farmers also as far as possible by organizing them into societies and hiring these devices out to the farmers from government levels or private trade level during sowing and harvesting seasons. In my state we have already got 65 government tractors in addition to a number of private owned tractors. These 65 tractors are now hired out during sowing seasons, for reclamation of new lands, and for cultivation of current lands. If we could supply harvesting equipments also perhaps we could hire these out during harvesting season also and avoid depending on the labor that we get from neighboring states. Introduction of labor saving devices would also encourage young men with

some education to take to farming as it would be more attractive to them rather than the age old methods calling for more manual labor. Consequently, a better class of people would be attracted to the profession and it would be easier to introduce improved practices.

It has also been my feeling that in our methods for approach to the rural population we should not merely depend upon stereotyped meetings and publications which are not widely understood but should take more to your audio-visual methods and concentrate on local information, local successes, local people, in the publications, movies, pictures, etc., that may be used for the propagation of knowledge in the rural areas. So long we have been dealing with the matters of wider interest in our publicity work which perhaps do not have appreciable appeal to the people of any particular area and enthuse them for better living or adoption of better methods. I feel we should, therefore, concentrate this part of the activities more in a localized manner and use the audio-visual methods more intensely.

It has also occurred to my mind that special training on extension methods in addition to the agricultural training is necessary for all agricultural workers, particularly those employed with extension work. I, therefore, feel that all our agricultural colleges should run a course on extension methods and graduates in agriculture should also be given that course of training before they have completed their studies. The extension workers of the government must I feel be given a course of training on extension philosophy, rural psychology, and the use of audio-visual methods, etc., through a refresher course as early and quickly as possible.

Inadequate funds are a great handicap to the subsistant farmers in India. In studying the arrangements in this country I noticed that contrary to the conditions in my area, the local banks have been handling a sound credit system for the farming population. We should, therefore, attempt to organize a credit system both for short term loans and long term loans, preferably through banks or failing that, from government resources without which it would be difficult to enable the farmers to take to improved practices or to implement plans formulated by them. In any case, I am sure that there is some kind of credit system that we must do.

I have noticed that many areas of low fertility are being rapidly utilized for livestock farming in this country. As beef production will not be feasible in my country, we should seriously, however, consider whether the newly reclaimed lands of the eroded zones or areas of low fertility could not profitably be utilized by introduction of the grass land farming systems practiced in this country for production of milk on the one hand and sheep and goats for meat on the other hand. This would not only supplement our present cereal diet by addition of protein foods but would consequently improve standards of health and efficiency.

Q. What was the value to you of the study in Washington D. C.?

A. I thought that that was one of the best weeks we have spent. The week at the USDA was considered by me as one of the most useful weeks I have so far had in this country. Firstly, it had impressed me that the USDA had thought up having an organization for Foreign Agricultural Relations and its officers had been ungrudgingly devoting considerable of their time to help agricultural workers in other parts of the world also, in spite of the fact that theirs is a country of surplus production and shortage in other countries does not materially affect them much. The spirit of hospitality and eagerness to help also impressed me. I was further impressed by the extensive organization that the government had built for extension work and the lavish manner in which the Department was equipped. That is the broad view. I had noticed that the extension department was a full fledged one with all branches necessary for rural improvement and had a large number of sections dealing solely with specialized branches. I had also noticed that the extension service, though primarily designed for agricultural improvement, had not overlooked other aspects of life and had wisely included in it special branches for improvement of health.

housing, diet, etc., all of which were required for improved living. (Did you pick up any ideas that might be of use to you in your own work?) Yes. The week in Washington made me feel that for effective extension work we should organize and build up a complete extension unit in each state with specialists in different branches including specialists on home economics, rural housing and sanitation, etc., attached to the extension department who would work constantly with respective branches of our research institutions and obtain such useful informations that may be available for improved practices and living and rapidly pass the knowledge down to the research workers for solution. Without this I feel there is a gap between the research workers and the extension workers, both for supply of information on the results obtained as well as for problems to be solved. This link will help our research workers to work on problems which are actually of urgent need for different areas concerned and at the same time will help our extension workers to obtain quickly the latest informations and knowledge. That was one thing from looking at your organization. The other is, at the USDA I also felt that a branch of home economics for work to improve the ideas of living in rural homes and to train the women in the rural areas in better housekeeping should be seriously considered as no partial improvement would lead to any permanent result if mothers, wives, and homes are left in the background. At the USDA I also felt it necessary for us to have satisfactory arrangements to meet farmers at all extension offices and to discuss problems and solutions occasionally in India.

Q. What suggestions do you have for ways the study in Washington might have been improved?

A. None. I thought it was very good. I was happy with the program there.

Q. What was the value to you of the study in Tennessee?

A. In the TVA area apart from the impressive work the project has done in the control of floods and production of electricity, as well as soil conservation, all of which are intended to be taken up by our DVC scheme, I noticed that the utilization of electricity by the farmers was possible mainly because the charges were comparatively low. This low charge made it possible for extensive use of electricity in the area and consequently the reduction of loss due to undercharge. This is a point which deserves consideration by our authorities particularly of the DVC. (Anything else about that study in Tennessee that interested you?) The community organizations and the effective social gatherings organized by the ladies of the community, the system of agricultural training in the schools, the responsibility taken by the 4-H Clubs for maintaining the village areas neat and tidy, building up parks, etc., for the communities, making road signs, etc., were points of interest. (Did you get any ideas that might be useful to you in your own work?) I did notice one thing about soil conservation. In the area that the TVA had pursued a program of reforestation on the banks of all streams and channels as a matter of policy, I was told that in spite of the trees along the shores the incidence of malaria was low. This practice, therefore, deserves serious consideration in the irrigated areas of our country also. I found out that if you keep the water flowing there is no danger of malaria. And I noticed that the TVA has a malaria control organization and the incidence of malaria has been negligent due to their effective activity. There are other things also I noticed, one of which is that considerable assistance was being given by the TVA to the University for research on local problems and in extension of knowledge obtained from the University. The TVA had also taken up manufacture of fertilizers which were readily available to the local farmers at considerably low cost. I was very impressed by Dr. Curtis who I felt had given us a clear picture of the activities of the TVA, its problems, its future plans and its working in a very concise but effective manner. I had also a feeling that the

TVA had much less persons in employment than the DVC.

Q. What suggestions do you have for ways the study in Tennessee might have been improved?

A. I don't think I have any. That is the week in which we learned about county work and visited farms and heard a lot about individual farm management and also saw cooperative societies and their method of working. I, however, feel that the period was packed up with far too many important things and the program was made heavy and had to be rushed through. Since that was the first time we got to the county level and there were so many important things that the program was very crowded. But that was a very important week. One other thing I noticed was the extensive use of cudsu vines on eroded areas and felt the need of wide introduction of this cover crop in the eroded areas in my state also. That was the first time we studied grass farming which I had studied in my student days. I noticed that English grass farming uses many different types of grasses whereas here you have kept to a considerable minimum number of varieties which is easier for extension work and wide practices. This made me feel that we should also consider this aspect in respect of our many rice varieties and try to minimize the number of suitable varieties for more effective extension work. I observed that during that period in view of the heavy program and constant rushing about some of us considered it too strenuous, but Mr. Hull who was leading this party and fairly advanced in years, Dr. Walrath who was showing us around the area, and yourself who had accompanied us from Washington, kept up a cheerful spirit although you all also went through the same strain as we did, and in spite of our views to modify the program, Mr. Hull managed to lead the group according to schedule!

Q. What was the value to you of the study in Auburn, Alabama?

A. At Auburn I was particularly impressed by the lecture given by the head of the poultry section, Professor King, on the use of visual aids for extension work. The period spent on that is considered of considerable value by me. The work on fisheries was also of interest but could be applied with limitation in my state as reservoirs in my state cannot just be left for fisheries but also have to be used for irrigation and therefore it is necessary to build them at higher levels for the benefit of agricultural lands down below. The system of sinking pipes at the bottom of the reservoirs to tap natural sources and to maintain water level was of special interest. The use of mechanical implements for harvesting peanuts also was of interest. (Did you pick up any ideas that might be of use to you in your own work?) The extensive use of the camera and simple methods affecting personal sentiment or ideas in the use of visual aids and lectures were impressive. The method of bringing the farmer into the films or pictures makes them more effective as teaching methods.

Q. What suggestions do you have for ways the study in Auburn might have been improved?

A. Not any.

Q. What was the value to you of the study at Tuskegee?

A. I had never seen the Negro people much before here but at Tuskegee I felt that the Negroes have in their own way considerable facilities and scope for their better living and improvement. In fact, it was my impression that living conditions of many of the Negroes were much better than the living conditions of average people in other parts of the world with a long established traditional culture. That is a great benefit I feel they are deriving from the successful management of the country by the Americans and their ability to assure a high standard of living to

all citizens. I also felt that the Negroes in spite of their considerable handicap and late start on improved thought and life have been doing very well to improve their own conditions. (Did you pick up any ideas there that may be of use to you?) Well, the idea of housing that I picked up was in fact before I reached Tuskegee which is that in this country the farmers themselves have been enthused to build up their own homes and they have successfully done it, contrary to my country where specialized workers are called up to build even the smallest house. If we could convince our rural population to build their own houses of such patterns and could supply standardized equipment as it is done in Tuskegee we would gain a lot and will find additional occupation for farmers during slack periods. The cement blocks made in Tuskegee were very interesting and we have been using cement blocks in Bengal to build refugee houses, but our blocks were made by specialized workers and we should now consider whether such blocks could not also be made in the localities concerned by the farmers themselves. I was also impressed to hear about Booker T. Washington.

Q. What suggestions do you have for ways the study at Tuskegee might have been improved?

A. I don't think it could have been improved upon.

As for Pine Bluff there wasn't anything special there. It was mainly a repetition of what we had seen except for the demonstration of the Cotton Picker which was interesting.

As for the Rice Station at Stuttgart I would say this much that growing rice under broadcast system and without much cultural practices for weed control and the mechanical harvesting of rice were of special interest. Considerable research work on rice from the point of grain quality, straw quality, period of maturity, as well as from the point of suitable varieties on different situations (altitudes) have been done in my state. We have 4,000 varieties under observation.

Q. What was the value to you of the study in Missouri?

A. The period in Missouri appeared to have been the climax on the study of the land grant college system. The part played by the land grant college system in solving local problems and in spreading improved practices from the laboratories to the fields has been felt as a special feature in extension work in this country. I am of the opinion that the colleges in India at the moment do not keep in touch with the actual application of the knowledge in the fields by the students turned out by them and have therefore little or no association with the activities in the field. I felt that the land grant colleges had gone beyond the lecture rooms and laboratories and had closely associated them with the practice of all teachings in the area concerned. The land grant colleges, therefore, are leading organizations for the development of the rural areas. In Missouri matters of special interest were the balanced farming operations and the assistance rendered by the county officials, the specialists and the land grant college in planning the farms under the balanced farming scheme. The outstanding lecture at Missouri was from Dr. Albrecht. The most interesting thing about his lecture was that any problem could not just be considered from a narrow angle but had to be observed on a broader basis and under a long term plan. Any research, therefore, required careful consideration as to its effect on a long term plan and its ultimate utility to fulfill the balanced requirement of human races. Dr. Albrecht appeared to be an outstanding personality with independent views and a broad international outlook. I was also impressed by the fact that his findings of immense value were obtained from trials conducted on very small plots of lands and he felt that even for research on vital factors, large areas were not essential. My experience in my country is that the research

assistants often demand large areas to conduct their trials.

As regards balanced farming operations I felt that the scheme undertaken here was more from the point of economy and profit on the system of farming. I have a feeling that in India a plan of balanced farming only on the basis of systems of farming would not be enough as the small areas on the one hand and attempts to meet all the requirements on the other hand, as well as profit, will have to be considered. In addition to the system of farming a cropping system to meet the requirements of cereals, proteins, vegetables, as well as cash crops are to be considered for any balanced farming plan in that country under the present land system.

The stay in a county was interesting from the point that the actual method by which the county agent and the home agent worked and maintained their contacts with the rural people were observed first hand. The system of crop competition through clubs for particular crops and high yields was of special interest. While in many counties the members of the Mission had the opportunity of short stays at the farms in the county I was in that was not possible. A number of days continuous stay in one or two farms and close observation of work throughout the period would have been of considerable value. The farm management for profit by farming is an important point for observation and greater stress on that point on the routine management of a farm by the farmer would have been more appreciated by me.

(Did you pick up any ideas that might be of use to you?) In the county I picked up the idea of high yield crop clubs and competitions held in the 4-H clubs and the importance given to publicity work through local radios and local press. I was also impressed by the quick service on soil testing rendered by the county officers at almost negligible cost. It was also a good part of the program in Missouri that some families here in Columbia entertained members of the Mission in their homes so that the Mission had a chance to see urban living and not just hotels and cafeterias.

Q. What suggestions do you have for ways the study in Missouri might have been improved?

A. I only have a general comment, not specifically about Missouri. I feel that in making programs for any group it would be of help if conditions of the country concerned, its crops, etc., are taken into consideration and programs planned in a way that only underdeveloped areas for underdeveloped countries are not considered, but a comprehensive picture of both the developed areas and the underdeveloped areas are given. We have spent most of our time in underdeveloped areas but I think for many of us it would have been an education to see how in a developed area a highly commercialized and mechanized farm is being operated. Even though we come from an underdeveloped country let us see not just underdeveloped parts of this country but the other side of the picture also.

Q. What was the value to you of the seminar in human relations and cultural anthropology conducted by Dr. Spicer in the New Mexico and Arizona areas?

A. That seminar gave us a background of the prevailing conditions and problems in extension work amongst the Indians and the Spanish Americans with small holdings. The time spent in the Spanish village was also an experience in the respect of the extreme backward conditions that prevailed even in this country which normally is beyond the expectation of a casual visitor to the states. The value derived from the seminar and the visits during the week in the New Mexico area was in respect of problems dealing with the extension work in communities with different cultural outlook and belief, hesitation to accept any new principle in life, and, amongst the Spanish Americans particularly, lack of requisite funds for improved living in spite of the desire. The accepted principle of improvement through the creation of desire amongst the people themselves, particularly of different cultural background, rather than attempt to introduce new modes of life from outside the culture appeared to be more sound from the study undertaken during the period. It was also felt that

in the communities and areas concerned the fundamental thing was education and consequently creation of desire through workers belonging to the same community, and provision of gratuitous funds in the early stages.

(Did you pick up any ideas that might be of use to you in your own work?) What we saw in the Spanish villages is applicable in many of the rural areas in India. (In what way?) Particularly in respect of lack of resources for improvement and at the same time lack of any initiative for betterment. These conditions are comparable to India and the lesson was that both in the Spanish villages as well as in India villages the immediate necessity was to enthruse people for better living by self help methods on the one hand and on the other hand to take necessary steps to increase per capita income through agriculture as well as industries. The improvement of people of different cultural backgrounds is likely to be effective and easier with the improvement of communications and expansion of better means of living in the areas concerned. The barrier of seclusion between civilization and something different from that will have to be removed first to enthruse people into the modern ways of living.

(What part do you feel cultural anthropology plays in extension work?) Understanding of the cultural background is an essential for any extension work as every plan and program should be drawn up and modified not only in regard to the need of individual persons but also the community, the cultural background, and all other environments. That is essential.

Q. What suggestions do you have for ways that seminar might have been improved?

A. That seminar itself was very good, but I personally feel that that week's study could have been cut short and the time spent in the irrigated areas increased in Arizona and California. After the first days of seminars we understood and that week might have been shortened. The California and Arizona areas were a delightful change after the backward areas and were evidences as to the improvement that could be done by irrigation and improved farming. The experimental centers were of great interest and I wish we had had more time in this zone.

Q. Looking back over the whole trip now, do you feel that this study tour met the objectives you had in mind when you arrived in the United States?

A. O yes. The main objectives were certainly fulfilled by the study in as much as the effective method of extension through people themselves appeared to be more and more convincing. The important part played by the labor saving devices and machines was convincing, and among other things, the adaptability of any extension plan or method to existing conditions either by a change of cropping system such as from dairy to beef production or food crop to cash crop or use of available resources such as electricity were also observed. To sum up, the study has convinced me of the fact that attempt to improve conditions by mere propaganda and gratuitous relief from an external agency as has been practiced in our areas hitherto would hardly bear the desired fruit. Permanent benefit could be derived only when the initiative for improvement, for planning and for execution were obtained from the people themselves and the chief object of extension should be to create the urge in the people themselves to play their own games on their own plans. The external agencies should not only act as friends, philosophers and guides and render all possible helps financially and otherwise. The rural organizations introduced into this country such as the 4-H Clubs and other farmer's organizations should be the chief organs of operation in each zone. That is what I am taking back.

Above all, I feel the greatest achievement of this study is the personal contact established with the authorities of the Ford Foundation, the Institute of International Education, the Land Grant Colleges and the authorities of the USDA. The interest shown by all the staff of these institutions makes one feel closely associated with

these institutions and the persons concerned and gives us courage to face whatever difficult tasks that may be ahead with a feeling that it is not just the Indian Government in India that is extending the helping hand but also these institutions, the U. S. Department of Agriculture, and the people of America.

I will say finally, I would personally express my gratitude to the Ford Foundation for the generous help they have given to enable me to undertake this study and to obtain this valuable experience. I feel this act of generosity on the part of this Foundation for the improvement of a country different from its own is indeed a noble act and I personally am beholden to the Foundation for this kindness. I would also take this opportunity to express my gratefulness to the Institute of International Education, to Mrs. Ludwig, and to the staff of the Extension Service of the USDA. I am grateful to Mr. M. L. Wilson, Director of Extension, Mr. Kenneth Warner of the Office of Foreign Agricultural Relations, the different specialists and other workers of the Department at Washington, the land grant colleges, the authorities in those colleges, the county agents, and the home demonstration agents, all of whom had ungrudgingly spared their time for our benefit and had made very sincere efforts to help us in every way possible for our study. I would also like to thank the staff of the Office of Foreign Agricultural Relations for the extremely capable way they have handled our correspondence, etc. in spite of any personal contact. I cannot close without a word of appreciation of the way Miss Wilson has undertaken the strains of the tour throughout the period, the tact and patience she has displayed in a group of so many different persons and the efficient manner in which she has performed this difficult task of evaluation. I feel it would be difficult also to express adequately the gratitude we owe to Mr. John Hull for the services he has rendered to this Mission on all matters big or small, the guidance he has given throughout the study and his sincere conscientious efforts to make the study and the trip a success throughout. One cannot help appreciating his ability in the manner he handled this large Mission which followed a strenuous and comprehensive schedule of study. Lastly, I should also like to record my appreciation of the men and women of American who have all through overwhelmed us with hospitality, kindness, and fellowship.

DR. MADHAVRAO BALASANEH GHATGE

Dr. Ghatge is Joint Director of Agriculture for Extension in Bombay State. Dr. Ghatge received his PhD from the University of Wales and did his undergraduate work in India. He was a Professor of Agricultural Economics before he joined the Ministry of Agriculture for Bombay State. He is 46 years old. He is a very sincere man and has an inquiring and very intelligent mind.

Dr. Ghatge also mentions the difficulty for individual participation in a group as large as the Mission of Indian Extension Leaders. He felt that if the large group had been split into smaller groups of five or six and travelled in that manner there would have been more opportunity for individual contacts. Also, all during the tour Dr. Ghatge was concerned with extension's position with regard to regulatory work, which, I gather, is one of India's extension problems. (See p. 3)

Dr. Ghatge's comments on Missouri in particular are food for thought. He says, "On the last day (in Missouri) we should have taken stock of the work we had seen during the week." This I think is a very good suggestion as to how participation in a large group might be encouraged. I feel, as does Dr. Ghatge, that frequent and planned discussions lead by the members of the group themselves would provide the lacking feeling of participation. If they were encouraged to have frequent evaluation sessions which they themselves conducted and in which they discussed their observations in terms of their own home conditions a program of this type would be considerably enriched. Of course, this would have to be planned for in advance, especially in a program as full and as tight as the one for the Indian Extension Leaders.

Dr. Ghatge's comments on Tuskegee and the seminar in the cultural approach to extension work are extremely interesting. On page 5 he describes Bombay's own cultural approach.

EVALUATION INTERVIEW WITH DR. M. B. GHATGE
JOINT DIRECTOR OF AGRICULTURE (EXTENSION)
BOMBAY STATE, INDIA

- Q. When you arrived in the United States what were your own personal objectives for this study tour?
- A. The Bombay state forms the western part of the Indian Union. It is about 125,000 square miles with a cultivated area of about 47 million acres. About 20 million acres are uncultivated. The important money crops are cotton, sugar cane, tobacco, peanuts, fruits and vegetables. The total acreage under food crops is nearly three million acres. The population is about 36 million. The climatic conditions vary considerably. The variation in rainfall ranges between 15 inches in the east to as high as 150 inches in the west. In food crops the highest acreage is in sorghums followed by rice and pulses. The size of holdings varies from three to fifty acres. The area under irrigation is hardly seven to eight percent of the total cultivated area. The literacy is about 24% in urban areas and about 17% in rural areas.

In my state we have already the extension service. In fact, our extension consists of what we call the propoganda of the results carried out by the research workers. The Bombay state was a sort of pioneering state in agricultural research, education and extension. The College of Agriculture at Poona was the first agricultural college in the country. The College undertook teaching the sons of the landlords in agriculture so that they, after taking a degree, could go back to manage their own estates. The College also conducted research particularly in breeding suitable varieties for the state. This was followed by intensive research in soil management, plant pests and diseases, agricultural implements and in agricultural economics. In the earlier days a need was also felt to equip boys with agricultural background for service in the administrative departments. It was thought that if the graduates of the Agricultural College were employed in the civil service, (revenue department) they would be of very great help to farming communities because while collecting the land revenue, the officials are concerned with valuation of crops in relation to the soils, soil fertility, and climatic conditions. That is how the college began.

At present the Agricultural Department has a research organization, a teaching organization and the propoganda (extension) organization. Until 1945 the extension branch was very small. There was hardly one to two persons for a district. But after 1946 the organization has been considerably increased. There is now a district agricultural officer for a district assisted by an assistant district officer. In addition there are three to four agricultural officers who are agricultural graduates each in charge of a revenue sub division in a district. Under them there are 12 to 16 sectional men each in charge of 15 to 20 villages. These sectional men are trained in agriculture in the agricultural schools which are 18 in number in the whole state.

On the research side also there has been considerable expansion. Between research workers and extension workers a liason has been established in subjects like plant pests and diseases, horticulture, plant breeding, etc. The work is coordinated by the Joint Director of Agriculture (Extension). He is assisted by a Deputy Director of Agriculture (Seeds), A deputy Director for manures and fertilizers, and a Deputy Director of Agricultural Education. In addition there is a Joint Director of Agriculture for Engineering who controls the agricultural engineering section, the mechanical cultivation section and the soil conservation section. The extension part of the latter is also coordinated by the Joint Director of Agricultural Extension. Their field staff works in coordination with the extension staff. There is a Deputy Director of Agriculture for Livestock who controls the work in animal husbandry. The general control of all the branches of agriculture rests with the Director of Agriculture. He is responsible to the

Department of Agriculture and Forests, which is under the Minister of Agriculture, Forests and Revenue.

Recently two more agricultural colleges have been added, one at Anand and the other at Dharwar. The former is for the Gunjarathi speaking population and the latter is for the Kannad speaking population. These two colleges are merely teaching colleges.

In order to intensify the development work, the government has started five community projects with the TCA. A training-cum-development center also has been started at Anand with the Ford Foundation aid. The object is to train the personnel of the Agricultural Department (persons in service) for all around development work at the village end. Under TCA two more training centers for training village level workers are likely to be started, one at Kolhapur, and the other at Arbhavi. These centers will also be aided by the Ford Foundation so far as the training part is concerned. The developmental part will be taken care of by the TCA.

Our present efforts are concentrated on increasing production, particularly food. In order to achieve this objective we in Bombay have launched a program for the spread of improved seeds, use of organic manures and fertilizers, conservation of moisture, increasing the area under irrigation, eradication of deep rotted weeds, bringing cultivatable waste lands under cultivation, control of pests and diseases, and introduction of new crops. The items of extension vary from region to region depending on the climatic and soil conditions. The improvements are carried to the farmers through the agency of demonstration centers which are now located on the farms of progressive farmers. They are also conveyed through the departmental leaflets but the scope is very limited owing to illiteracy of the masses. Occasionally the improvements are carried through fairs and exhibitions and also by means of crop competitions.

Thus it can be seen that Bombay State is very much advanced in agricultural teaching, research and extension.

I wanted to study the set up of extension work in the U.S.A. and its relation to the teaching institutions, the research institutions, the agencies giving finance and such other agencies as are essential in developing rural areas such as education, health, irrigation, etc. Also I desired to know the recent technological advances and how they have been taken to the farmers. It has been my experience that in persuading a farmer to adopt technological improvements many a time his difficulties in getting the necessary provisions or in getting credit are very great impediments. I feel that a person who approaches the farmer with technological improvements has to be equipped with all the necessities associated with technological improvement. If he is not equipped with the necessities requisite for adopting technological improvements the technological improvement doesn't take root. I wanted to see how these improvements have increased production and helped in improving the standard of living.

I also wanted to study in this country how the farmer himself tries to improve himself and stand on his own legs for bettering his living, and I wanted to see how the adult farmers and the personnel in service receive training in the latest agricultural improvements.

Q. What was the value to you of the study in Washington D.C.?

A. It was of great value because all our further studies were based on the information we got at Washington. I feel that the orientation should have been longer because we should have known the federal set up of extension work in greater detail. We only had 20 minutes in each of the five different sections of the extension service. That was too little time. In Washington, though only a short time was provided, brief information on all the departments was given and summarized by Director Wilson

in the seminar on the last day in which he gave us a clear picture not only of the organization but of the objectives for the study and the points which we should observe in our visits to the various places in this country.

I would have liked to spend more time at the University of Maryland and at Beltsville in order to understand clearly the relation of the research workers to extension workers. But I think the program has been very well drawn up, covering all aspects of extension.

Generally for the whole tour I think it would have been more effective and more valuable if the Mission had been divided into small groups each of five or six men. This would have given more opportunity for individual contacts.

Q. What was the value to you of the study in Tennessee?

A. The development of electric power which resulted in its low cost was striking. It has reached even the remotest farm houses. In general it is my impression that electricity has done very great good to this country. We have a plan for rural electrification by the new dams that are now under construction at Kakrapada and the other under consideration at Koyna. The information given at the University as well as in the counties was very valuable. It was the basis of further information. We saw farms and Dr. Walrath explained in detail the extension work in technological improvements in agriculture, the home demonstration work and the 4-H Club work.

Q. What suggestions do you have for ways the study in Tennessee might have been improved?

A. I feel I did not get enough information on coordination of extension work with the regulatory work, price regulation and credit facilities. How are all these activities coordinated at the federal, state and county level? What part does the county agent play in this picture and what is his position in regard to the regulatory and credit functions of PMA, FHA, etc.? It was my feeling that the soil conservation service does its technical work and also does some extension work which was duplication. This general observation applies to the other places we have visited also.

Q. What was the value to you of the study at Auburn, Alabama?

A. At Auburn the seminar on visual aids was extremely valuable and it may not be possible to adopt all those methods in our country owing to the financial position of my state, but I think in due course as facilities of electricity and transport develop the methods explained will be adopted with advantage.

Q. What suggestions do you have for ways the study in Auburn might have been improved?

A. More time should have been given to the study of visual aids. The information on controlling of weeds in tanks was very useful as I have a similar problem in my state in the control of weeds, particularly wild rice in tanks.

Q. What was the value to you of the study at Tuskegee Institute?

A. It was valuable to see how the problems of low income farmers were tackled. At Tuskegee I could see how the authorities were trying to solve their problems in respect of finance, material required for housing, educating the boys and girls of low income families. It was of great value to know that nearly 60% of the Negroes are literate and only the older adults were illiterate and that they are politically conscious. They know how to exert their own citizenship rights.

Q. What suggestions do you have for ways the study at Tuskegee might have been improved?

A. Only that the stay might have been a little longer.

Q. What was the value to you of the study in Missouri?

A. To my mind the stay there was very long. I feel we should have had lectures in the morning and the afternoons left free to read and assimilate. On the last day we should have taken stock of the work we had seen during the week. Then in the county I did not get a chance to live with a family. More opportunity should be given to living with a farm family. This would give opportunity to know the customs, manners and habits of the farmer here in so far as his farming is concerned. It would enable one to watch social and religious contacts in the community and it would also give us a chance to study more of a community as a whole. This does not mean that I did not get any knowledge during the period of my stay in Missouri. The information on the demonstration farms, the explanations by Dr. Albrecht, and the explanation of the idea of balanced farming were decidedly food for thought. Similarly, the meeting of the county agents at Poplar Bluff was very useful. It explained how the county extension workers are kept up-to-date in their information by the subject matter specialists. In this meeting the subject of animal husbandry, dairying and health was discussed. In the county the county agent explained the working of the Farm Bureau where the program of work of the county was discussed and approved. We tried to get information in respect of the county appropriations and the amount of money spent for agriculture and other development activities. We also tried to ascertain the extent of loans advanced to the farmer by the local bank, by the ginners, by the FHA and FMA and other sources. We also saw the various organizations that functioned in the county for improving the standard of living directly or indirectly. In Pemiscott Country there are two home agents, one for the Anglos and the other for the Negroes and we saw some of their work. We saw that a good deal of work is being done for women.

Q. What was the value to you of the seminar on cultural anthropology and human relations conducted by Dr. Spicer in the New Mexico and Arizona areas?

A. That seminar was very instructive and I attach very great importance to this approach (in what way was it instructive?) As an extension worker it is essential to take into account the cultural background of the farmers. In my state there are Christian farmers, Muslim farmers, Hindu farmers and the underprivileged farmers. Approach to the farmers in the above mentioned categories has to be different. An extension worker may not consciously learn the science of anthropology. Still as a practical person he has to adopt such measures as would suit different cultural levels. (What are the underprivileged farmers?) The underprivileged farmers are those who are backward and have not had adequate opportunities to develop intellectually, economically, socially, politically. These people were once rulers of the land. Just as the American Indians were here and who were first conquered by the Spaniards and pushed back to the hills. The psychology of our underprivileged farmers is that of the vanquished. To bring about a change in the attitudes of such people it is necessary to appoint persons from within their own communities. This I observed in Santa Fe where we met Mr. Chavez who is a Spanish American. That seems to be the best way to bring about change quickly, even though it may be slower in the initial stages.

(Did you pick up any ideas that may be of use to you in your own work?) As I stated above, so far as Bombay State is concerned, care is taken to see that the cultural level is taken into consideration. It may not be a conscious effort.

It may be an indirect practical method, but, however, hereafter a little more attention will be paid to this aspect. In my state, our extension workers under such circumstances are required to take advantage of the farmers meetings at night in the village temples where they generally assemble for prayers. At that time the village level worker is required to recite songs, the subject matter of which is some sort of technological improvement. Couplets are prepared for technological improvements and these couplets are then recited to the farmers in the form of song or music which is most appealing. In my state a ballad singer is appointed for this purpose of composing the couplets. Personally I feel that the only way to encourage an illiterate person to adopt an innovation is to make him recite these couplets so that in due course they get so intimately fixed in his mind that they are translated into habit and he recites them and practices them in his daily cultivations.

We also saw the culture of the Hopis who live in villages and we could acquaint ourselves with one more culture. In addition we could see the erosion and the extent that erosion had taken place. The last seminar we had at the Grand Canyon was very good. It was absolutely essential to review the observations made in the previous days.

It is not yet clear to me why there should be a separate Indian Service for looking after these backward people and why they should be divorced from the general state administration machinery.

At Truches it was observed that farming was made subsidiary to employment in the atomic energy project at Los Alamos. The young farmers used to drive every day 72 miles round trip to work and returned home late at night. They worked on the farm only on holidays and in summer. Director Wilson who was with us at Truches remarked that it would be good if the nation could adopt a policy of decentralization of industry and bring some jobs closer to the cultivators so that they could fruitfully employ the time they spend in driving back and forth to work in attending to their agricultural activities.

Q. What suggestions do you have for ways the seminar might have been improved?

A. The exact methods of approach were not clearly brought out in this study. It was not clear whether stress should be laid on press propoganda or on visual aids or in individual contacts. Also our contact with people was very short. I feel that we needed a longer time to be spent first to study the theoretical aspects and then have a longer stay with families and with the groups. There is another point that we when we go with certain improvements in mind to the backward people we go with a superiority complex and do not weigh the new improvements and their values in relation to the values of the backward people. When we go with a certain improvement we do not properly weigh the other man's point of view in respect of the improvements.

I would also like to mention the Albuquerque State Fair. What appealed most was the training given to the 4-H members in judging cattle because this to my mind gave an opportunity to 4-H members to look after their projects in a manner which would enable them to win citations. It was also interesting to note that the competitors do not much care for cash prizes. The competition of lassoing the cattle formed one of the activities and was also very appealing. The presentation of the county exhibits was worth emulation in our fairs and shows.

The achievements of the 4-H Club member of the Median farm at Santa Cruz were most striking and that was also a valuable thing to see.

Q. Looking back over the whole tour now, do you feel that it met your own objectives?

A. This trip has met the objective with which the tour was sponsored because the

program has covered almost all the salient features of the objectives. I have stated previously that my main objectives were to study the extension set up in the United States; to study the coordination of teaching, research and extension; to study the coordination of extension with the regulatory functions and price stabilization; to study how the yields per acre have been increased; and to study how the standard of living of the farmers has thereby improved.

The information given on the various aspects of extension work during my trip to the various states according to the program will be of very great use as and when circumstances for the adoption of that information in my country arise. It cannot be denied that the help rendered by the Ford Foundation in giving me the opportunity to come over to the United States and to study the agricultural extension work will be of very great value to me and to my state whenever I will be called upon by my state to suggest ways and means of improving the set up of the extension service in my state. The attempt of which will be to increase food production as well as the general standard of the rural communities. The information obtained during the trip not only in the respect of agricultural extension but other observations in the sphere of women's work, boys' work, the relations between trade, commerce and rural communities, etc., will be very helpful.

DR. K. G. JOSHI

Dr. Joshi is Deputy Director of Agriculture in Madhya Pradesh State. His agricultural education was obtained at Nagpur University in India. Prior to his present position he was Secretary of the Agricultural Policy Committee in Madhya Pradesh, member of the India Agriculture Delegation under the Colombo Plan to Canada. He visited the United States and Japan on a study tour from December, 1951 until March, 1952. He is presently in charge of Extension under the Ford Foundation. Dr. Joshi is a young man of 39 and he is an extremely wise and tollerant person. His analysis of what he considers the problems in Indian extension work is, I feel, an extremely intelligent and thoughtful one and is very interesting reading. (See p. 1 - 3)

Dr. Joshi brings out, as is true of almost all of the interviews, the lack of opportunity for participation. (See p. 4 and 5) He suggests, "If it would have been possible for us to work in smaller groups we would have been very much profited." It seems to me that since we will be continuing to arrange training programs for large groups of people we must consider how this problem of allowing the opportunity for individual participation is to be solved.

I have a feeling that one of the reasons why the members of the Mission of Indian Extension Leaders were so cooperative on this project of evaluation through individual interviews was that it was one of the few opportunities they had to express their individual reactions and to mull over verbally what they had observed. It was an individual form of participation. I do feel strongly that Dr. Ghatge's suggestion of having sessions to take stock of the experiences and observations during a week's time would solve the problem of lack of participation and would help the participants to feel that the program was really theirs.

Dr. Joshi also emphasizes the value of living with a farm family, an experience which he did not have. His comments on the seminar in the cultural aproach to extension work are extremely interesting. He feels that, "It gave me a new approach to extension work." His comments on the value of studying at Tuskegee and Missouri are also most interesting.

EVALUATION INTERVIEW WITH DR. K. G. JOSHI
DEPUTY DIRECTOR OF AGRICULTURE
MADHYA PRADESH STATE, INDIA

- Q. When you arrived in the United States what were your personal objectives for this study tour?
- A. My own objective is to find out from what I observe here in what ways we are deficient in organizing our work in India. Our work in extension and in other fields which may be outside the orbit of extension but have to do with extension in India make me want to see similar organization here. For example, organizations like PMA or FHA having to do with regulatory work is connected to extension in India. I have come here with some background which is like this. Some two years back I wrote for my government a report which reviewed the existing position in respect to agricultural education, research, extension, mechanization, cooperative farming, and other special problems. This I did as a member and secretary of an eleven man committee appointed by the government. On completion of this report I got very clear ideas on the problems facing the farmers in the state and the State Department of Agriculture. Immediately after submission of this report to the government, I had a unique chance of visiting Canada, U.S.A. and Japan where I got the opportunity to know in what direction these countries had succeeded in rehabilitating their agriculture. In a way, this second study tour to the U.S.A. might appear superfluous but personally I feel I will be very much profited as this time considerable pains have been taken by the Ford Foundation, U.S.D. A., and other state departments to put before us clearly the problems and the solutions. (Did you have any other objectives?) It is observed that in the U.S.A. the main objective of the extension service is educating the farmers and the future farmers of America, the sons and daughters of the farmer who step into his shoes in the future. The objectives of the extension service in India get somewhat mixed up, maybe because of the pressing problems of the country, e.g. agricultural production. With this objective we have been looking forward to the results of extension and we are anxious to see that certain high production is secure within certain limits of time. With the implementation of the Five Year Plan of the Government of India, we are laying more emphasis on securing at least 25 to 50 percent higher yield of crops on an average at the end of five years. Such an objective is likely to undermine the real objective of extension service. As the extension staff has to be interested in finding out how they could force the farmers to adopt their recommendations, they thus get mixed up with PMA, FHA, etc., functions. Unfortunately in India organizations such as PMA, FHA, SCS and others have not been set up and as such the responsibilities of some such organizations which are sponsored by governments have to be enshouldered by the extension service staff. Therefore, the extension agent has very little time for education, he is so busy with all his other functions. Unless organizations with adequate specialized staff like PMA, FHA SCS, etc. are established the extension service by itself would not be able to achieve the goal of higher agricultural production and would also fail in their main objective of educating the farmers and their sons and daughters and also effectively carry all that science has to offer to improve farming and also carry back the difficulties of the farmer to the research worker to find the proper solution.

Also I feel that the extension service in the U.S.A. is getting enough results of research which they have to pass on to the farmers. The research organizations in India to my mind are not so effective. For example, in my own state, the total strength of the research staff would not be more than 30 to 35 whereas the total strength of the field and demonstration staff which is comparable to the extension service staff here would be not less than 250 highly technical and 1,000 semi technical. I always feel that when you think of extension you must also think of research and in our country when we think of extension we do not feel that the research has completed its job. I would illustrate this by a simple example. In

my own state after research work of over eight years, a few research workers established some improved varieties of rice. The extension service people took these varieties to the farmers. They appreciated and liked some of the varieties that we recommended and in some places these varieties replaced 20% of the local varieties that the farmers grew. But the local varieties that the farmers were growing on 80% of the land would not use the new varieties because the farmers felt that they were using varieties in no way inferior to the improved varieties recommended. Some of these local varieties suited the food habits of the people and some had a definite place in the local market. When a very close study of all these factors has to be made, the existing staff of research workers falls too inadequate to meet the situation. Then the extension service people try to think on the problem and they cannot do it as they are not plant breeders. And when the extension workers get into such a situation they feel that more research personnel is necessary to help them.

The present situation in India is due to economics, not capital. In our country the need of agricultural finance today with the undeveloped system of agriculture is so small and still 90 to 95 percent of it is met by private money lenders.

One thing which we are putting great stress on in our five year plan is utilizing the unharnessed or unemployed idle man power that is so plentiful in rural India by inducing the people to put in voluntary labor without any remuneration for the common good the the people. This is very difficult. What is important is productive employment in gainful industries or diverging a section of agricultural populations to industrial employment.

For years to come it may be difficult to disengage the extension service from other activities such as distribution of fertilizers, insecticides, pesticides, arranging agricultural loans in kind and cash, etc, mainly because many of the agricultural improvements are dependent on imported materials. This is where I feel the necessity of commercialization of agricultural research in the sense that when certain agricultural improvements have been found to be economic, we should depend on manufacturing and distribution of these requirements ourselves and not depend on other countries to supply them to our farmers. I am more convinced of this due to my observation in respect to use of fertilizers in Japan. The maximum imports of fertilizers did not exceed more than 200,000 tons per annum, whereas the manufacturing capacity steadily rose to three million tons just by the second world war. Apart from the direct benefit to the agricultural population, this gives employment to a section of it and thus leads to the prosperity of the nation.

Another problem is that 80% roughly of our agricultural population are at the subsistence level, meaning that they produce only their food and housing needs. They have nothing to contribute towards better housing, nutritive feeding, education, sanitation, and other elementary necessities of good civic life. When we have to deal with this 80% section the extension workers are baffled because lifting their standard of living is an up-hill task. The solution will come if a large proportion of this population is absorbed in industries and the farming is raised from subsistence to a profitable level by increase in the holding per capita. The extension worker in the future therefore, will have to develop different types of plans for the farmers at various levels of farming giving primary consideration to their purchasing power.

I have fixed some achievements and one of the targets we have taken is to cover at least 50% of the acreage under crops by chemical fertilizers -- a manuring program. The actual area today would not be more than 2 to 5%. The real handicap in this type of work would be that nearly 80 to 90% of the crop profit due to increased yield by use of fertilizers would go to make the cost of the fertilizers, leaving a meager profit of not more than 5 rupees per acre for the farmer, which he would spend for the benefit of his household and not in building up the finance for his farming. Thus, he would never find economic relief and be able to help

himself, that is get rid of extraneous sources of finance. Whenever we think of any agricultural improvement money has to come from somewhere. Year in and year out there is no source to get such a huge amount of money unless the farmers build up their own finance through some small savings which it is too difficult for them for the present to make in subsistence economy. Ultimately I think the solution to all these problems lies in industrialization.

Q. In view of all the problems you have mentioned what do you consider the value of studying the extension service here?

A. By our studies here we can get a better insight in assessing the situation because the fundamental approach of an extension worker to any extension problem is analysing the situation. When you reach certain conclusions from analysing a situation you must be sure that your analysis is correct. That is one very important point. By studying the extension work here this is one thing that has been brought home to us more clearly. In the second place, we were able to evaluate the indirect help of organized institutions such as PMA, FHA and SCs. I think they control your agricultural finance creditably. This shows the necessity of organizing these institutions steadily in our own country. I have had the opportunity of studying how these institutions developed in Japan which had a larger proportion of farmers at the subsistence level of farming. Around about 1880 when the era of Meiji (Prime Minister of Japan) restoration started the institution of cooperative associations came into being which was fully developed in years to come and today performs all the functions of institutions such as PMA and others which I have discussed above. The two weeks we will spend in Japan will be really valuable.

Q. What was the value to you of the study in Washington D. C.?

A. The initiation at Washington was very valuable. Those who talked to the group had clear ideas of the problems of the extension service in their own country. Without the background of what the situation is like in India it was very difficult for them to give emphasis on certain points which would have more application under our conditions. For instance, the various methods employed in carrying back the solutions offered by research workers to the farmers in this country may not be applicable in our country because we have mainly to deal with small and illiterate farmers who are not yet organized in such groups as to put before the extension worker what they consider as their needs. It would not be enough to produce literature in farmers' language but it would be necessary to read that literature to them through some agency which has intimate social contact with the farmers. This is what we are doing in the training center organized under the auspices of the Ford Foundation. The students go to the villages every evening, get the farmer in social groups, talk to them on social matters, join them in the religious prayers and in the interludes read a technical pamphlet. What may be important is to read the same pamphlet on several occasions. When these Point IV men who are at present working in India come back it may be possible that they would be able to speak with better understanding to groups who may be coming later on. I feel that a study group of highly qualified American technicians working in collaboration with good technicians in India could contribute much to analysing some of the agricultural problems there. I suggest a study along the same lines as that done in Japan by the Natural Resources Section of the Supreme Commander for the Allied Powers in Japan. Also evaluation would be another way of doing this work.

At Washington we talked of extension but we did not talk on agricultural credit. Some orientation on agricultural credit in Washington would also have been important. (Did you pick up any ideas that might be useful to you in your own work?) Mr. Warner's talk on analysing a problem was very important and the development of agriculture, the talk given by Dr. Wilson was very important and valuable. The

talk on 4-H Clubs and home demonstration activities was important. We have not yet these organizations and we needed to know how they started and it doesn't do us too much good to know how they are organized now. That is due to perspective and not too much is known of our perspective in this country.

One thing I think is that we have to sit down when we get back and evaluate together what we have seen and done and set up some broad policies together for work so that we do not all go off in all directions.

Q. What was the value to you of the study in Tennessee?

A. We had heard so much about the TVA in India and we could see ourselves how the developments were taking place. We were struck with the organization of rural communities in Tennessee and we were shown brilliant examples of how a farmer of no means could start a new life with the FHA assistance and in the middle part of his life even be a leader of the community. That was Mr. Moore, the farmer in Chatata community. That is what I feel about Tennessee, I think.

Q. What suggestions do you have for ways the study in Tennessee might have been improved?

A. Not only in Tennessee but in most of the places we suffered from one short coming. The group being too large, it was very difficult for every one of us to question and know the individuals we have met and many a time we had to put aside our questions. If it would have been possible for us to work in smaller groups we would have been very much profited. That is the main thing because this 23 is a very big group. Another point is working with a group like ours from India it is very important not to forget that the extension work does not have the same support and a background of research as it has in this country. Applications of general principles of agronomy is not enough for extension work while going into a problem of animal husbandry or plant disease or soil in relation to crops very detailed studies of local problems is necessary. I feel that in extension work in India we are working more on general principles and very detailed studies of local problems is lacking. We have a lot to learn from the practical practices of farming that has gone on for centuries in our country and the reasons for them.

Q. What was the value to you of the study in Auburn, Alabama?

A. In Auburn I think what ever little we could see of fish culture was important. All over the rice growing areas we have farms and if we could grow more fish in these farms they would be a very valuable protein supplement to the poor rice diet in that area. Technicians are already studying this and finding out how to overcome the main difficulties of the dry spell of eight months which often dries the ponds. That is our biggest problem. Also I think the use of visual aids we saw demonstrated was very important. The use of the flannel graph was something new to us and would be a very valuable visual aid in our country where the rural masses are illiterate. We will have to use pictures to get the farmers the new agricultural practices.

Q. What suggestions do you have for ways the study in Auburn might have been improved?

A. Nothing special other than what I said above.

Q. What was the value to you of the study in Tuskegee?

A. The Tuskegee study to me was one of the most valuable in the sense that it showed how people with the greatest economic handicaps could help themselves through education. The conditions of Negro farmers are very much similar to farmers in India. They are less educated, they have smaller farms, and they have not yet

begun to see farming as a productive occupation. The Negroes suffer from the handicaps of big families, which I should say is the characteristic of any rural family in India. The educated few always think of family planning and when we get to the rural masses, it is very difficult for us to find a way to break the ice, but in the rural work that I have been doing for the last several years, I feel an urgent necessity for a family planning program which could be worked out through a good organization of home agents. It will mean educating the rural women which is a delicate job and has to be done very intelligently. Organizations such as the Association of Medical Women of which my wife happens to be a member have been thinking on these problems. Their main problem is to find a simple contraceptive which they could recommend to people of low income groups. Efforts by individuals are being made to study some of these questions. For example, knowing the great potentialities of this program, I persuaded my wife to keep record of some of the cases of various income groups that she was handling, but such types of studies are always undermined by general practice that a busy woman doctor has to do. I personally feel that though this is a subject that is not in harmony with our culture, still it should not be neglected with the population problem we are faced with. My wife has shown me several cases of low income groups who have come to her for advice on family planning even from illiterate rural masses. I was very impressed with Tuskegee Institute and the work they are doing.

We are in a state of transition. When the British were there it was easy to blame their administration for not helping us in our economic development. Now that we have our own popular government, we have to face the situation and find out how we could work out the program of economic emancipation. And it is a very difficult task.

Q. What suggestions do you have for ways the study at Tuskegee might have been improved?

A. None. The general thing always applies. I would have liked a personal talk with Mr. Tom Campbell. He was a first county agent and his experiences were so important but there was not the time.

Q. What was the value to you of the study in Missouri?

A. Some of the discussions at Columbia, Missouri, were very valuable, particularly the ones on balanced farming and the discussion on the permanent plots under the fertilizer and cropping tests. Dr. Albrecht's work. I think it would have been valuable to cut short the program in Columbia and if we had given more time to the counties and in the counties themselves it would have been very valuable if we could have stayed with a farmer who had adopted a balanced farming program and studied in detail his economic progress from year to year. As it was, I had no opportunity to stay with a farmer. We spent two days at a conference, which was very good and three days with the county agent. (In the county did you pick up an idea that might be of use to you in your own work?) The important things we observed in the county was (1) the ditch drainage system which made this county so rich, (2) the working of the home extension clubs, and (3) what FHA systems could do through share croppers and renters in changing their whole future.

Q. What was the value to you of the seminar in human relations and cultural anthropology conducted by Dr. Spicer in the New Mexico and Arizona areas?

A. The early field work which was similar to extension work in India depended for its success or failure on how far the field worker worked in harmony with the customs and beliefs of the people. This was shown, how important it is to know about the culture of the people amongst whom we are working. The seminar on cultural anthropology beginning at Santa Fe and ending at the Grand Canyon was very valuable in breaking open to all of us the scientific application of this new development in the

field of anthropology. It is one thing to work unknowingly in a desirable way, and it is another to know the fundamentals and thereafter organize the work. Considering this I think that Dr. Spicer brought home to the group the value of this new subject to the extension workers. While going through the extension work as it is today with the Spanish Americans, the Pueblos, the Navahos and the Hopis and finally summarizing observations at the Grand Canyon we could see that these developments had parallels in the history of agricultural extension work over the last hundred years in India. In the British rule the extension workers met with considerable resistance from the rural people. A part of the resistance may be due to economic strain, but much could be due to cultural antagonism between the extension workers and the farmers. I had an opportunity to discuss at the end with Dr. Spicer what the cultural anthropologists term sub culture. The educated class of people in India who form the administrative and technical personnel today shouldn't forget to take note of their subculture with their work with the rural masses. A change is coming over with the majority of rural masses in India and the growing impact of cash economy. Extension work may get easier in the future. Education also will bring about a definite change in the present day culture of the rural masses.

In summarizing the value of this week I would state what I personally felt because it is difficult to know what the group as a whole felt about it. It gave me a new approach to the extension work. Many of us felt that the political leaders and the administrators in India should have seen and gone through this seminar to know that one has to be patient before the results of any line of extension work are to be seen culminating in material gain of the people amongst whom we are working. In India today we are expecting miracles through extension work. With the economic and cultural handicaps it would be difficult to realize these objectives in the span of a couple of years.

Q. What suggestions do you have for ways the seminar might have been improved?

A. Well, I think the time was too short. Secondly, we would have been very much profited if we had had some basic orientation in the basic principles of cultural anthropology. However, the general high standard of the group was such that Dr. Spicer could have done the orientation in a very short period. A good study in this line is also difficult without knowing the languages of the people of the cross culture which we were trying to study and as it was a seminar study many of the observations made by the group were too general. I would have liked to have spent more time with the people as we did at Truches. In the same way we should have spent more time with the Hopis and Pueblos. The very objective of getting us here was not a very detailed study of fundamentals and application of the new developments in the field of cultural anthropology but to show us what is being done in the U.S.A. and see for ourselves if this new phase of development would be of any use to us in India. I think this objective has been clearly achieved.

MR. TARA CHAND KALA

Mr. Kala is Deputy Director of Agriculture in Rajasthan State. His previous experience has been as Division Agriculture Officer and Assistant Director of Agriculture in charge of Extension work and Research work. He was also Director of Agriculture in Jaipur State. In his present position he is in charge of the Government of India Cotton Extension Scheme and other research schemes. He received his agricultural education in India and a Masters Degree in agronomy and extension at Texas A. & M. College. His work has been mostly in extension for the last 16 to 18 years.

Mr. Kala offers a good many suggestions in the latter part of his interview. He feels that a longer time should have been spent in Arizona and California where climatic and crop conditions are more similar to India. All of his suggestions beginning with page 3 are worth thinking about.

EVALUATION INTERVIEW WITH MR. TARA CHAND KALA
DEPUTY DIRECTOR OF AGRICULTURE
RAJASTHAN STATE, INDIA

- Q. When you arrived in the United States what were your personal objectives for this study trip?
- A. My first objective was how the extension service in the states is working for the welfare of the farmers and what things we can carry back through our observations to apply them under our own conditions. (Did you have any other objectives?) Yes. I wanted to study the research work of this program, the financing of agriculture, marketing of produce, the use of farm machinery and tube well irrigation.

Before you ask your questions, I would like to give you a summary of my impressions during this tour.

The main point that has struck me is that the size of the farms in this country is large and the pressure of population on the land is much less as compared to India. There are even greater, or equal, chances for men in other industries than in agriculture and the people don't find difficulties to switch over from agriculture to other jobs, while in India the chances for switching over from agriculture to industry or other jobs are not so bright. This is one of the reasons why people do not want to leave the farming profession although it may not be so profitable for them. Another thing that has struck me is that the credit facilities for the farmers are very large and easy. They can get good credit either through the land banks, FMA, or FHA for all improvements or purchase of farms or farm equipment that they need. The government rules are made in such a way that the loans taken for the improvement of the farm have got the first priority over other loans. This insures a security for the banker. At the same time the farmer cannot utilize the loan for unproductive purposes. Another factor is that these loans by the FMA and other government agencies are distributed through the agency of the local farmers who are acquainted with the farmers of their area as well as their needs and also keep a watch that the loan is properly utilized. The civil service has not much hand in the distribution of these loans, while this is not the case for the distribution of government loans in India.

A third point is the price support policy of the government is beneficial in controlling the production of all important agricultural products. At the same time if there is a surplus of any commodity, they can immediately take steps to cut down its production or hold the produce from flooding the market. In this way the interest of the farmer as well as of the consumer is protected. Another thing is that the statistics of production and area under different crops and commodities are very well maintained and within a short period the government is in a position to know the production and requirements of the different commodities of the country.

Another point is that the farmers in this country are all educated. The radio, television, and the local papers all take great interest in disseminating all important news both of research, extension and market that may be of use to the farmers. The job of the extension agents is therefore much easier. They have simply to put out a newsletter or give a small talk on the radio, or a discussion with one of the demonstrators on television and all the farmers in the country generally try to listen and read these talks and news. Radio and newspapers have become very popular with the people and they are now considered as a necessity in each home while these are a luxury in India. There most of the farmers are not educated and extension workers have to make a direct approach to each individual farmer. This process takes a long time and is not very effective. An example of this I saw in the Pueblo, Navaho and Hopi Indians and the Negro areas where the extension service has not made much headway in spite of its existence for the last

40 years. If we compare these conditions to those in India we find that our uneducated farmers are much more intelligent and the work of the extension service there is far ahead of the extension service in those areas.

Another point. The competition between the farmers and the different industries is so great and commercialized that an average intelligent farmer cannot afford to neglect even the slightest improvement in his farming practices and he is always keen to take up new ideas which may benefit him. The farmers here are well to do, their holdings are large and they can always afford to take risks in the way of experimentation, while in India the economic condition of the farmer is not so good and they cannot afford to take even a small risk. This is one of the reasons why improvement in agriculture is faster in this country.

The business community and the different chambers of commerce and the manufacturers of agricultural machinery are interested in the welfare of the farmer and they are always keen to improve the agriculture of the country. The competition between the manufacturers in one industry is so great that they cannot make exorbitant profits by selling their produce to the farmers and the farmer can always get his requirements at the competitive market rates. The industry is also anxious for research in their line and they try to make improvements so that they may compete with the other products in the field. This insures the supply of best equipment to the farmers at reasonable rates.

The extension service here looks to the welfare of the farm family as a whole including the improvement in agriculture, welfare of the farmer, his food and clothing requirements, the education of the young boys and girls, while in India the extension service at present is mainly concerned with the improvement of farming operations or the agricultural side. They have not taken up the home demonstration work or the 4-H Club work. The improvement of home life resulting through the activities of the home demonstration agents makes the extension service very popular with the farm wives and at present the home agents are more popular and in greater demand than the county agents. She has greater individual contacts with the farm people than the county agent. The improvements in equipment like refrigerators, gas ranges, plans for houses have made the lot of the farm house wife much simpler and attractive than that in India where most of the work is done by hand. The rural electrification and telephone system in this country has also contributed a great deal of the improvement of the farms. This has resulted in the farm people staying on their own lands rather than concentrating at a particular place and living in a village. Where these facilities are not yet available we still find people living in a village society.

The 4-H activities, FFA and vocational agricultural schools contribute much toward the success of the extension service in this country. From the very beginning the young generation is made familiar with improvements in agriculture and they are in contact with the extension service so that when they actually take up farming they have no difficulty in contacting the extension people. At the same time they realize the value of the extension service and can also start on new ideas.

The research program in the states is so well organized and the requirements of different regions are properly looked after so that the results obtained in particular regions can be safely recommended to the farmers with confidence, with the result that there are very rare chances of a recommendation of a county agent resulting in failure and loss to the farmer. This has created a great confidence in the extension service and now the farmers try to contact the county agent themselves rather than the county agent contacting the individual farmers.

The state fairs and 4-H Club demonstrations and competitions give a great impetus

for improvement amongst the farmers and the members of the 4-H clubs. The activities like 4-H Clubs, WFA, etc. need to be introduced on a very large scale in India.

The help given to the farmers by the government for all soil conservation activities creates a great incentive for improvement and they try to make all possible improvements which they can afford through the help of the government agencies. They can also get loans for improved farming practices recommended by the SCS or the extension service. In fact, in many of the counties before a farmer can take any loan from a government agency he has to prove that his farming practices are in accordance with the recommendations of the SCS or the extension service. This results in early improvement and adoption of recommended practices by the agriculture department.

This is a summary of my impressions from this trip.

- Q. Even though you have summarized your impressions, I would like to ask you about each of the places we studied during this tour. First of all Washington D.C. What was the value to you of the study there?
- A. The study in Washington should have been longer and we should have been given some details of the different agencies working with the farmers other than the extension service like PMA, SCS, etc. This would have given a better idea about these associations and curtailed unnecessary discussions in the other states where in spite of devoting more time to the subject, some of the ideas could not be cleared up. This would have also avoided repetition of the same program in many states. The next point is that more time should have been spent to study the different projects at Beltsville as research is a main basis on which extension activities are built up. In India, like other countries, an extension worker should have a good knowledge of the research work and how it is organized and applied to the farmers. The research side was almost neglected at Washington as well as in other states. (Did you pick up any ideas in Washington which might be of use to you in your own work?) In Washington we studied the organization of the Extension service. That was orientation.
- Q. What was the value to you of the study in Tennessee?
- A. So far as the extension service is concerned in all the states, the problems and methods are almost the same. The only thing is that it showed that out of the felt needs of the people the TVA was started and how it was built up into an organization which takes care of the needs of the farmer and industry, etc. It has also controlled the danger from the floods and utilized the water resources for the development of the various industries in the state. On the model of the TVA the Damodar Valley Authority has been formed in India to develop irrigation and hydro-electric power from the Damodar River. It will also control the danger from floods which were so frequent during the rainy season. Incidentally, the control of the water by the various dams has resulted in checking the soil erosion that was going on in the past. The TVA has also given aid for fertilizing the soils and improving them by various other methods. (Did you pick up any ideas that might be of use to you in your own work?) The application of fertilizers and soil erosion control.
- Q. What was the value to you of the study at Auburn, Alabama?
- A. I come from an arid area where there are not many possibilities of fresh water fisheries and that program was of not much use to me personally, but I have taken some literature and ideas which may be utilized by our man dealing with fisheries in Rajasthan. The visual aid demonstration at Auburn was very useful and some of the methods can be utilized while dealing with the farmers who are not educated. (Which methods?) The picture demonstrations and the flannel graph, etc.

Q. What was the value to you of the study at Tuskegee, Alabama?

A. The aid given to the poor farmers who had no security to purchase the farm land and the houses interested me. The revolving fund kept by the Institute to help the poor farmers for building new houses and equipment for their farms was of interest as they could not get loans from other agencies for want of adequate security. The program of cement block houses was also interesting and it showed us how with their own efforts the poor farmers can build a decent house at very little cost.

Q. What was the value to you of the study in Missouri?

A. The stay of one week at Columbia could have been easily curtailed to nearly half the time and utilized in a better manner in some other place like California, I should say. The visits to FHA, The Farmers Seed Growing Association, the Electric Cooperative, etc., was merely a waste of time as the people concerned were not interested in giving out the needed information or those who conducted the tour were unable to explain clearly the functions of these organizations. It would have been much better if somebody could have explained in detail to the group as a whole the functions of such organizations and an opportunity had been given to the group to get their doubts removed. It was only when we went to the counties that I could really find out what was the function of the organizations like FIA, FHA, SCS, etc., and how they helped the farmers. The stay of one week in the county was helpful in giving a real insight into the working of the extension service and its various activities. While in Grundy County we had an opportunity to visit the Inter State Fair at St. Joseph where a competition for livestock maintained by 4-H boys and girls was held. This fair was organized by the Chamber of Commerce with the help of the extension service but entirely financed by the Chamber. This demonstrated the usefulness of the 4-H activities and we could also see how the parents of the boys and girls took interest in the various projects. Some useful hints were also given by the judges about the different animals and what points they considered were responsible for their selection. There was only one judge for the different competitions and in my opinion to get a better selection it is necessary to have at least two if not three judges. In the county we also visited some home demonstration clubs, 4-H meetings, community dinners and participated in their activities. During these meetings and talks we also realized that in spite of education and radios people knew very little about India and were keen to find out how people live, what they think, how they farm, what are their political inclinations, etc. We also saw some of the balanced farming programs in this county. I stayed with a farm family for a day. This gave us an opportunity to study American home life and the working of the farmer and his family.

Q. What was the value to you of the seminar in human relations and cultural anthropology conducted by Dr. Spicer in the New Mexico and Arizona area?

A. Before starting any work in a community it is necessary to study their customs, manners and behavior and what will be their reactions to the different activities. If a man is familiar with these, his job as an extension worker can be facilitated and he may be able to overcome many prejudices that might result due to bad handling of the situation and being unfamiliar with customs of the people. (Did you think the seminar was a good idea?) The idea behind the seminar was quite good but I think the period that we spent was not necessary. (How do you mean?) It was not so necessary to spend so much time on that. We could have curtailed it to three days. One thing that came out of this visit was that the extension service has not been able to make much headway where the people are not educated and are not financially better off. One more salient feature was that for such a large area in the Indian reservation there was no demonstration of improved methods

of fertilizing or seeds, etc. At Fruitland I was told that in 11 years the extension workers could lay out only 1 experiment on fertilizer last year and people had to be taken out at least a distance of 500 miles before they could be demonstrated any improved methods or practice recommended by the extension service.

I would like to comment on the time we spent in and around Phoenix and southern California. Our stay in Arizona and California should have been longer because the conditions in these two states are more similar to India. In their cropping practices they also resemble India. In my short stay in California in the Imperial Valley I couldn't find any permanent pasture which has been so highly recommended for maintaining soil fertility in other states.

At least one week should have been spent in California and Arizona in the counties to study their cropping system as the type of agriculture in these two states resembles the cropings in India. Cash crops and productions of grains is of primary importance in India on account of the large population and food shortage and California production of grain and cash crops has been given the greatest importance as compared to pastures and beef production. Although the soil of this area needs a lot of organic matter and pastures may be recommended to build up the soil fertility, still the farmers here try to build up soil fertility by means of cover crops, fertilizers, etc. The value of barnyard manure is also realized by the farmers and they try to utilize it for their crops while in most of the other states visited by us no consideration was paid to the use of barnyard manure. After harvesting of grain, the barley and wheat straw is utilized here for cattle feed instead of being turned into the ground and the farmers feel that it is a valuable cattle feed. In other states visited by us this is simply turned into the ground and is not considered as suitable feed for the dairy. In India great consideration is paid to the straw after the harvest of the grains and it is considered as a valuable fodder for the cattle. These are some of the points which lead me to think that it would have been more valuable for the group to spend a little more time in these areas rather than in the states which had very little similarity to Indian farming conditions.

- Q. In the beginning of this interview I asked you what your personal objectives were for this study trip. Now I want to ask: Did this study tour meet your objectives?
- A. Yes, it has met my objectives but there could have been certain improvements as I have already mentioned.
- Q. Do you have any other suggestions about the tour as a whole?
- A. The program should not have been so strenuous as to keep the mission busy from eight in the morning until eight in the night. They should have given some considerations to the strain which an outside mission has to undergo on such a long trip especially under conditions which are different from those to which they are accustomed. Here the food, climate and water, etc., are not similar to those in India and people could not adjust to the changing conditions every day. At least Sundays should have been given free so that the members could get some rest. The result was that some of the members of the mission were ill and one of the members had to be removed to the hospital. A second consideration is that with a foreign mission it will be better if the man who conducts the mission should have some experience of the country and conditions from which the mission is coming. This will avoid certain unnecessary misunderstandings and he would be able to appreciate the views of the mission. He can also know what things are of value to the mission under their conditions rather than to stress on points which may not be of much value to the mission. Mr. Hull who was conducting the mission took great pains and honestly and sincerely tried his best to explain things

to the best of his abilities. He had a good experience of all views of agriculture. The mission is grateful to him for taking all these pains. This could have been still improved if Mr. Hull or someone else conducting the tour had good experience of Indian conditions also. The mission is also thankful to Miss Wilson who worked very hard along with Mr. Hull to look after the arrangements for the mission.

Other suggestions are that the work of the SCS which has great importance to farming was almost neglected while chalking out this program for the mission. No extension worker can afford to overlook soil conservation and especially in a country where the soil has been impoverished over several centuries.

I feel that arrangements for the mail of the mission were most unsatisfactory and letters were held up either at Washington or somewhere else for days together. When a mission comes out from a far off country it is necessary that they should be able to have contact with their people but this was not possible under the arrangements made for the mail. The program of the mission had been chalked out two months before its arrival and it was not very difficult to arrange to send the mail at the proper place.

In conclusion I want to say that we are all grateful to the Ford Foundation who sponsored this tour and made a very generous gesture in helping the people in a foreign country. The mission is also thankful to M. L. Wilson and his colleagues at Washington and the various extension officers and members of the Land Grant Colleges in the States who worked very hard to show as much as possible of Extension work in the various states within such a short period. In the end I must say that we have made lasting contacts with the people of this great country and have come to know each other much better which will help the two great nations to work for the welfare of the mankind and lasting peace in the world.

MR. AMRIT LAL MUKERJI

Mr. Mukerji has just been appointed Joint Director of Agriculture in Tripura State. Previously he was Headmaster of an Agricultural School and an extension officer in Tripura State. He has had 30 years research and practical experience and during that time spent five years as a tobacco specialist. He introduced flax in Bengal in 1933 and did extensive experiments on the effects of irrigation on paddy in the Damodar Canal area. He was an extension worker for 11 years. Mr. Mukerji is a very sincere man, devoted to his work and to his religion.

Mr. Mukerji suggests that more time should be allowed for individual studies in a county along the same pattern used in Missouri. Participation comes up several times during this interview (p. 6 and 7) He also suggest that a longer and more intensive study in the irrigated areas of Arizona and California where conditions are somewhat similar to India would be very valuable.

Mr. Mukerji's interview is a very positive one in terms of the ideas he picked up all along the way which may have applications in his own work.

EVALUATION INTERVIEW WITH MR. AMRIT LAL MUKERJI
JOINT DIRECTOR OF AGRICULTURE
TRIPURA STATE, INDIA

- Q. When you arrived in the United States what were your personal objectives for this study trip?
- A. After graduation, in my early life, I took up research on tobacco and I worked on tobacco for about six years and introduced many new varieties, some from America -- White Burley and Yellow Pryor for cigarettes, Pennsylvania for filler for cigars, Havana from Cuba, and also Manila from the Philippines. During my tenure I introduced cigar manufacture with these filler varieties and Sumatra as wrapper and supplied to some local cigarette factories the Virginian tobaccos. The cigars were very successful whereas the cigarettes didn't proved to be as successful. I even introduced Turkish tabaccos like Ayasalouk. This was very much in demand but the yeild was not commensurate with the cost of production. We tried some flue curing of cigarette tobacco but the flue barns were notquite controllable because the temperature couldn't be regulated properly. I was then switched to extension work where I was responsible for introduction of sugar cane in one of the districts of Bangal. Immediately after this I was taken into jute research where I spent 14 years and evolved a new variety by selection which proved to be better than the standard recommended variety. It was tried against the standard and local varieties for a number of years and proved its superiority. In 1939 Jute and other fibers were taken over by the Indian Central Jute Committee and they have been doing this work since then. In 1933 I was responsible for the introduction of flax in Bengal which was processed and fiber extracted by improvised machinery evolved by me on the pattern of machinery used in Ireland. Also I had made observations of slow flowing rivers and irrigation in East Bengal which were similar to those in Belgium and I tried my experiments on such rivers and made a success of them. In 1940 I was taken back to the extansion work and since then I have been working as Superintendent of Agriculture and Deputy Director of Agriculture in which my main interest was to push on the results that I secured in the course of my research on different crops and I had demonstrations on cultivators plots which were conducted with subsidy so that cultivators did not suffer any financial loss, but in every case the departmental recommendations proved to be superior to local types and gradually the cultivators took to them. One difficulty in regard to these improved strains was that we could not supply the necessary stock of improved seed required by neighboring cultivators as we had no agency for the multiplication of these improved seeds. The cultivators themselves used small areas and they were prone to keep the worst plants for seed purposes because they wanted to make money out of the best plants. So my idea was to find out how in the states here the improved seeds are being supplied to the farmers. That is one of my objectives. I was in tobacco from 1920 to 1926 so I am sure that there has been a lot of improvement in the field of tobacco research in the meantime and I wanted to have a thorough insight about this improvement here. In West Bengal as well as Tripura, my state now, we have sufficient areas which can be successfully grown with tobacco which will be a cash crop for the cultivators, since the main tobacco belt of undivided Bengal lies not in West Bengal but in East Pakistan. This is another of my objectives. Then on account of the influx of refugees from Pakistan we have had an impact in West Bengal of middle class families who are now eager to lay out their money for mechanization of areas they have taken settlement of. As an extension officer I have been very often faced with the difficulty that these men, although they possess some machines such as pumping sets or tractors were very much helpless when they went out of order. Service stations are not available. If a small part breaks this has to be sent to Calcutta at a distance of some three to four hundred miles. In the meantime the work suffers or the optimum season passes away. This has inflicted sever losses on many of our people. I was wondering therefore, whether some suitable agencies could be installed in concentrated zones where a few

tractors or pumping sets are in work. The Department of Agriculture of course does come to the rescue when such facts are brought to their notice but that is very inadequate, so I wish to see what is in vogue here in the states to remedy this aspect of our difficulty. Then I want to know how we could win over the minds of people by an approach of spirit of service to them to draw their sympathy in this respect. So I want to study the way the county agents get the cooperation and confidence of the people, the functioning of the 4-H Clubs and the Home Demonstration Clubs and also the coordination between these and the Land Grant Colleges and the Federal Extension Service. Also I am interested in the organization of agricultural education since I was principal of the only agricultural school in West Bengal at that time. Since July another agricultural degree college has been started in Calcutta.

- Q. You have already mentioned some problems which you are working with in extension work in your state. Are there any others that you want to bring out here?
- A. Yes, there are many problems. Tripura and West Bengal are problem areas. You will be interested to know that I was appointed as Joint Director of Agriculture for Tripura State and have only been on my job there since the seventh of August of this year so that actually I know more of West Bengal. In Tripura we grow a lot of pineapple and some oranges but on account of transport difficulties these are wasted away. It was my interest to see if these things can be canned or preserved in a fairly cheap way to meet the needs of our population where these are scarce. There is a great potentiality of jute also in Tripura but the transport difficulties enter into that because we have got nothing but the air lift. There is no road even over to Assam. We have a number of big water areas where fish rearing is possible so the study of improvement of fish culture here is also one of my objectives because I am not only Joint Director of Agriculture but also Director of Fisheries. (As far as extension work is concerned in your state what are some of the problems you face?) As I mentioned before the preserving of surplus citrus and pineapple. Actually in Tripura state no extension work has been done so that I shall have to start from scratch. We are going to have a development block in the community project in Old Agartala. In this community project we shall have this extension work with an adequate ground staff that we are recruiting at the present moment. This will be in the shape of introduction of improved seed and then utilization of small machines such as pumping sets, small garden tractors, rotavators, etc. Of course our objectives are to improve homes and standards of living. We have tried cooperative farming in other parts of India and we have found that people are not yet cooperative minded, resulting in the fact that we have yet to make a long way to get them used to this method which would augment their conditions immensely. So uplifting their conditions as well as to improve the crop production and yield of their livestock would be our aims. We have already introduced artificial insemination in one area in Tripura and propose to introduce more in the near future. We propose to introduce Rhode Island Red and White Leghorn poultry and Khaki Campbell ducks which would mean to the cultivators not only subsidiary occupation but better income also.
- Q. What was the value to you of the study in Washington D.C.?
- A. We got a very good idea as to how we could proceed on in a manner that is contributive to success in the manner of our approach to the cultivators. (In what way?) Well, actually Mr. Kenneth Warner gave us a very clear plan as to how, where and when we should tackle the situation and that will be very helpful. I am apprehensive of the procedure adopted here in regard to multiplication of seeds through some private seedsmen. We have been growing a lot of jute seed through some growers both European and Indian. Whereas we have been quite satisfied with the use of seeds

from European growers, the same could not be always said of the Indian growers. This is because of the fact that in abnormal years their contracts could not be fulfilled and they mixed ordinary market seeds to fulfill the contract which resulted in the Department losing its good name. Actually in the case of jute we had to pay a heavy compensation to the cultivators in one year. So I feel that unless we have some government control agency we shall not be able to attain what has been achieved here in the states. (Going back to Mr. Warner, what principles did you find from him that might be useful to you?) You see, the main thing is to give the right cultivator a visual demonstration of the performance of a crop which he wants side by side with his own variety so that he could be convinced immediately of the superiority of the recommended variety that is demonstrated. Seeing is believing. (Was there anything else of value to you during the week in Washington?) A most interesting feature was the raising of dairy cattle on farms which were mainly pastured. That we saw in our visits in Maryland and at Beltsville. In our country we haven't got any farm exclusively laid in pasture. There we have sort of farms under different crops in which dairy is an adjunct only to that. Fodder is grown for supply to these dairy cattle where the paddocks are very small. The paddocks are a very small area where cattle are grazed. I think we should now try to develop such dairy farms only under grass and pasture. This is something which I think will be suitable for us. Another thing of very great interest and importance was that when Sindhi cattle could thrive in Beltsville fairly well, why we should not try to introduce some of the American acclimatized Holstein or Jersey breeds (from warmer southern regions) in our part to breed up our animals. I also found some very interesting things like the model kitchen at Beltsville but they are not reachable for us at the present moment. I do feel that if more efficient methods could be introduced for home making women would have more time for other occupations. If we could only introduce one-tenth of the home economics program you have here we would achieve much but we have not the resources. As it is now the woman spends all her time except four or five hours of sleep wholly occupied with the household work. Mr. Warner's exposition was wonderful. He gave it in a masterly way and I think he left an impression on each of us.

Q. What suggestions do you have for ways the study in Washington might have been improved?

A. I don't think there is anything to improve upon. It was excellent to see the way that things are being dealt with. Of course for a poor people like us all these things cannot be applicable because we have not the requisite resources financially and the refugee problem eats away the main bulk of the finances and leaves us little for the major improvement work.

Q. What was the value to you of the study in Tennessee?

A. In Tennessee the rivers have been controlled for prevention of floods and the river has been harnessed for electricity and in West Bengal we have the DVC where our objective has been to utilize the water for irrigation purposes and also for hydro-electric power for supply of electricity in rural areas. In our country we have all the rainfall in the course of four or five months and that is not evenly distributed throughout the year as in your states which means that rice growing or any other crop raising requires sufficient amount of water to be supplemented beside the rainfall. Here also to my mind I thought that some crops could have been made to yield better yields if irrigation was implemented. With regard to tobacco I feel that with the mechanization that intensive amount of care needed for tobacco raising is not being taken, resulting in ununiform and somewhat inferior grades of tobacco being produced. I am not a smoker myself but even then I heard from people who smoke there that the quality of cigarettes has somewhat gone down in comparison to the reputation the American cigarette has had in the past. It may

be that mechanization has resulted in a less amount of careful attention to tobacco. Back to my interest in the TVA, in my part of the country we want to introduce rural electricity in order to utilize the services of the cultivators for some home industries during the period of slack which is something like six months in a year. In this connection, I had the objective of introducing flax in West Bengal to keep them occupied at least for a part of their leisure period. Flax has the advantage of being processed long, long after it has been harvested so that during any small period of the cultivators spare time he could busy himself in processing the fiber. This could be done with the help of small machines to be run by electricity. So that is an example of how electricity could help some of our rural industries. The man hours that we are losing during slack periods is colossal and we should not waste our man power to that extent.

Another thing that interested me was in the Museum of Atomic Energy I found the application of radio active phosphates for fertilizing lands and some of the treatment of livestock by radio active substances, which would be of great application value in our conditions. (Any other ideas which might be useful in your work?) Yes, this community development. We should emulate the methods which have been followed here which I am sure would very much bring about the feeling of fraternity and cooperation among our cultivating folk. If this spirit could be imbibed in them I am sure we would go a long way in ameliorating the conditions and raise them from their present sub-human level.

I saw in certain places where we couldn't stop certain mechanical appliances which I would have been interested in seeing in detail. Introducing of such small things in my state would be more appropriate than thinking of bigger things. Of course bigger machinery we have in use as reclamation tractors which are being used in the resettlement of refugees. But they cannot be used in cultivation proper. As I said before repair work is a great problem in our state. I have in mind that if we could train our boys like 4-H boys to be able to do mechanical repairs we could achieve partial success in our objective. Until we do that it will be a sheer waste of our effort in mechanization. We should have the necessary trained personnel for maintenance before we recommend mechanization. Use of the tobacco seedling planter would be a very essential innovation in our parts. Incidentally, we can grow successfully Boehingia Nivea (Rhea, Ramie, China Grass) in West Bengal and Tripura but the deguming and extraction of the fiber is in the way. A decorticating machine that does away with this snag is another interest. This is in use in Florida where a good acreage is under this crop.

What suggestions do you have for ways the study in Tennessee might have been improved?

A. One suggestions is that Dr. Walrath had arranged the program and he tried to bring our as much information as was possible, but even then I felt that in some regard some agronomic information would have been more useful to us. If it were possible it would have been very helpful if we could have met and talked with a specialist in agronomy. These farmers, although they are literate and fairly well educated, they couldn't satisfy us in regard to certain questions. For example, I wanted to know about the varieties of tobacco raised and the yield and that kind of agronomic information. But yet I want to emphasize how helpful and with how much esteem I hold Dr. Walrath.

Q. What was the value to you of the study at Auburn, Alabama?

A. In Auburn we had two special things, one was about pisciculture in which I was very much interested because my state has very big tanks and ponds where fish rearing is proposed to be taken up. The other thing was the tillage research laboratory. Of course in this particular thing, the tillage laboratory, my expectations were varied and not realized fully. Actually the work done here is

in testing tractor tires in which I was not much interested. There were, however, some interesting experiments with Kriliun undertaken by the soils section of the station for improving the texture of the soil which was very interesting. The work done here on fish culture will be quite suitable for adoption in my state with a little modification. The discourse given on visual aids was most instructive and if it were possible to have the necessary equipment in India that would play a great role in advancing the extension techniques to the cultivators at large. I wish I could have spent some more time on this particular subject so that we could carry home more detailed information in this subject.

Q: What was the value to you of the study in Tuskegee?

A. There for the first time I had realized what self help could achieve to the Negroes through the ideals left as a legacy by their great master and savant, Booker T. Washington. The agricultural engineering department of the Institute has developed a new technique for the manufacture of vacuum bricks which have proved very economical and labor saving. We were shown around a great many constructions built by the farm families themselves which I felt we should emulate in our country where we are faced with resettlement of a large number of evacuee farm families from Pakistan. I felt that there was a great potentiality of this work being inaugurated in our country and the standard of living achieved by Negro Farmers was also a matter which we should make an effort to achieve. Although their standard was not so good as the white farm families in either Tennessee or Maryland or elsewhere I felt that what they had achieved had been really very substantial and worthy of emulation.

Q. What suggestions do you have for ways the study at Auburn and Tuskegee might have been improved?

A. At Auburn, as I have said, the visual aid program of Professor King could have been afforded a longer time to enable the visiting group to assimilate these innovations in their proper perspective. In regard to fish culture, also, in Auburn we were divided into two groups, as a result of which I was not able to see or get the full benefit of the fish culture lectures since I went in the afternoon to the lecture on peanuts. The experiments done in connection with peanuts also could not be fully seen on account of the fact that the research officer who was in charge of the work was away at Cornell. But even so I feel that what we did see in regard to the improvement of this crop and its adaptability in Alabama was of great value and I felt that this could with advantage be introduced in my state where there is sufficient scope for peanut cultivation. The inspiration of the way the work was done in Tuskegee would go a long way to model our own activities in that line.

Q. What was the value of the study in Missouri to you?

A. With regard to Missouri I feel that we should have had even more time for our individual studies in the counties than what we had. I also feel that the time that we spent in Columbia could not be reduced because we had excellent discourse from various specialists, for example Dr. Albrect, and also about balanced farming from Professor Behermeyer. In Missouri we actually came to realize to what extent private banks play their role in the improvement of agriculture in this country. We have no such institutions at the present moment in India which could come to the aid of the farmers in the way that is being done here. It was amazing for me to see that the first national bank of Camdenon had instituted a pasture contest in which they had formed a judging committee with some non official persons of eminence, some officials from the county and state level and some farmers. In this contest a few prizes were declared of different values without any entry fee. In our country we of course have such contests, not initiated by any banks, but by the state. Even then there is an entry fee for every contestent to participate in the scheme.

On top of this the bank also declared that on the close of the judging and declaration of results all the participants irrespective of whether one was winner or not be given a banquet. So I felt the great import of this kind of undertaking which goes a long way with improved practices of agriculture and also popularizing the banks for such undertakings. I was also very much impressed in seeing the way these banks play their role in short time and long time credits to the farmers. The prosperity of the farming folk is very much in evidence on account of this aid. It was also noteworthy that of such credit given by the bank, very insignificant amounts were really bad debts. (Did you pick up any ideas that might be of use to you in your own work?) Extension of pastures in the way that is being done here will not be applicable in our country, but other items of work in the balanced farming program could most usefully be applied and adapted to our conditions with modifications.

Q. What suggestions do you have for ways the study in Missouri might have been improved?

A. The only thing was that we had repetition on organization of extension work in lectures. We saw the working of 4-H and other activities in the counties and did not need a general repetition in Columbia.

What was the value to you of the seminar in human relations and cultural anthropology conducted by Dr. Spicer in New Mexico and Arizona areas?

A. I come from a state where we have some aboriginal tribes like the Navaho, Hopi and Pueblo Indians. They at the present moment practice a kind of fire farming which means that underbrush in a piece of land is set fire to and the land is cultivated and then they move on to another place as it gets exhausted. This fire farming is called "Jhuming" in our country. So this seminar was very interesting and instructive so far as our dealing with these aboriginal tribes is concerned in the matter of agricultural extension work. I felt that we should be able to avoid mistakes which have been committed here so that the human relationships with such tribes could be most happy and contributive of progressive ideas amongst them. (What ideas did you pick up that might help you to avoid these mistakes?) We should make an effort to win their confidence in our extension work by demonstrating our recommended practices in and around their fields, not in any way at the outset coming into conflict with any of their beliefs, totems and taboos, which we shall gradually try to ward off by good will and real service to them. (What part do you think cultural anthropology plays in extension work?) You see, by gradually educating them and giving them sufficient scope to do things in their own way we with a gradual way of winning their faith can help them to help themselves. I felt that Dr. Spicer's seminar was of great value to us in meeting problems in our country as I have already told about which are existant in regard to the aboriginal tribes who actually have a different culture.

Q. What suggestions do you have for ways the seminar might have been improved?

A. During the seminar we should have liked to have had much more time to discuss things in. What I personally feel about the whole trip was that the group should have been smaller in number. One thing about this seminar is that not all the states in India have this problem of such aboriginal cultures and people as we have so that it was of greater interest to those of us who have similar problems. More time and smaller groups would improve such a seminar.

I would also like to comment about the Phoenix visit. The Phoenix area was very interesting. In Arizona we saw briefly wonderful achievements in the field of irrigation which we might be able to adopt in our country and I feel that we should have had much more time than we had in Arizona to study in detail the irrigation

practices in vogue there. We have a rainfall of about 120 to 150 inches within a few months from April to August. Thereafter we don't usually get much rain. The result is that we have to depend on more irrigation water for the success of our crops and we found almost the same conditions prevailing in Arizona and southern California. It would have been better if we could have devoted some more time in these places for a more intensive study of these practices.

Q. In conclusion, looking back over the whole study tour, do you feel that this study trip met the objectives you outlined at the beginning of this interview?

A. Oh yes. I have found answers to many of the questions in my mind in the course of my study tour here which will be of great benefit to me in my work for the uplift of my cultivating folk and thus rendering service to my country at large. Even so there remain some matters of which I couldn't satisfy myself on account of the limited time and also for the difficulties that are apparent to level questions in such a large group. The study tour has been of very great value and I feel that I gathered much knowledge in the course of this tour which will be of lasting value for the farmers in my state. There are various aspects. One is the 4-H and FFA, FHA. We will try to improve the conditions of the farmers by institution of such and allied activities as that of 4-H, FFA, and of the farmers home by similar activities as would be applicable by the home demonstration agents. Our resources are small and we cannot achieve the amenities that are being enjoyed by the farmers here. Nevertheless what little relief we could afford to the families of farming folk would naturally go a long way in our country. In matters of research and other activities here I feel that we should try to have a sort of field laboratory to give necessary aid to the farmers in regard to composition of their soil and what manures could be recommended to them in the context of their financial resources, because I would not feel that it is right to tell them of new practices without taking into consideration their financial resources. Here I feel that the Ford Foundation could extend and afford us a little more aid by having a portable set of equipment for the field laboratory to enable our district officers to render the cultivators the necessary technical help in regard to soil composition, their manure requirements, etc. One set at the out set per state is suggested. This is only a suggestion. The munificence of the Ford Foundation has been responsible for making a great headway in agricultural progress in India and my idea is that this suggestion might not add much to the burden they have already undertaken but would prove so extremely useful.

Then this question of fish culture here will also be of great value to us with necessary modifications. Our cows give a very small quantity of milk. We had in the past tried some Ayrshire, Holstein and some other imported breeds like Brown Swiss, etc., but had had no good results for the fact that they are very susceptible to various contagious diseases. I find that Jersey cattle are giving wonderful performance and have adapted themselves here in the warmer regions admirably. I therefore feel that one or two bulls of Jersey breed may be instrumental in stepping up the quality of our indigenous breeds. Here also I most feverently feel that supply of a pedigree bull in my state, Tripura, by the U.S.D.A. would be contributive of so great a potentiality as to change our conditions and be illustrative to other states. As regards crops I feel that some hybrid corns, peanuts, and some of the burley tobaccos could be introduced in my part with reasonable benefit.

I must record my most grateful eulogies for the important role the Ford Foundation has played in enabling us to pay a visit to this great country and see things for ourselves and study the system of agriculture here. In this connection I shall be failing in my duty if I did not mention the great contribution in the matter of our program and details made by Messers M. L. Wilson, K. F. Warner, C.C. Hearne. In regard to the discourses I am most grateful to Messers Wilson and Warner, Professor King in Auburn, Mr. Tom Campbell in Tuskegee and Mr. Calwell in Missouri. I also must

record my most grateful thanks to Mr. Sterrett, the county agent of Camden County and Miss Jackson, the Home Agent, who helped me to see everything in details in their county in Missouri. Mr. John Hull who was the field director in charge of our group had been extremely helpful and I have nothing but words of high esteem and gratitude for the way in which he conducted the study tour and took especial care of those of us who fell sick. Miss Virginia Wilson, who was Mr. Hull's assistant also spared no pains to make the tour a great success. I feel that this goes on record in my evaluation.