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TRAINING TEACHERS OF AGRICULTURE

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TRAINING TEACHERS OF AGRICULTURE.

TRAINING TEACHERS AFTER EMPLOYMENT.[1]

By R. W. STIMSON,

Massachusetts State Board of Education.

In Massachusetts we believe the greatest problem in teacher-training to be that of teaching teachers how to teach while they are teaching. In a way we have been trying to do this for several years, but our program has looked forward to the plan which we are putting into effect this year.

Having a system of agricultural teaching, the improvement of teachers in service involves three main factors: The teacher, the teacher trainer, and the program for improvement. In Massachusetts, as you all know, we have the home-project plan of teaching agriculture, and the entire problem of teacher-training must be based on this plan, with its definite adjustments to each locality.

THE TEACHER.

The teacher of agriculture has come to us from a great many sources and we have constantly to face the extreme danger of damaging failures through selecting poor men or by letting the men make the wrong start. The farm-management experts have gone over the ground, and say, taking the country as a whole, the man most likely to succeed is the general farmer, as distinguished from the extreme specialist. Now, if profitable farming is not an impossible problem for the farmer, it ought not to be for the instructor. The instructor ought to be a man who can farm as well as the best farmers in the locality in which he is to teach. He must know their methods. While the college professor occupies a chair, this man fills a "settee." He must be familiar with a wide range of subjects.

As a matter of experience, we have found that we can get that type of man. You have the type in New York, Pennsylvania, Indiana, and other States. Now, are we going to get the best return on our investment by letting that type of man also do too many other things? I think this a very serious question, and I think we are in extreme danger of spoiling our job. Who is going to judge whether or not we are spoiling our job? We have a man who has been

[1] From stenographic notes of an address.

in our service for several years, a man who is a positive genius in dealing with foreign-born children, interesting them in all kinds of club work, a genius in holding the interest of those boys. I was in a conference recently in which the principal member of a school board was accusing this instructor of dealing in the spectacular. I said, "Why do you say that?" "Why," he said, "he turns out so many winners. His boys go to the fairs and win all the prizes in stock-judging. They win more free trips to Washington than the boys of any other school in our State. He is not a good teacher." Why does he say that? The critic is an old-time teacher and does not see in that classroom the "behind-the-desk" work. But I have been in that school at the most unexpected times, over and over again. The instructor is a good housekeeper. He has bulletins in great variety, all conveniently filed. I have never gone into his classroom at a time when I did not find the blackboard filled with matter suggested by the projects of the boys on their home farms. But because there were not visible the things that the critic saw in other classrooms in the high school, he says that man is not a good teacher. Now, I am perfectly free to say he is not as good as he might be. I do not care how good your teacher may be, there will always be room for improvement. We can become better farmers and better students every year. It is never too late to learn.

We must have a man who can take his boys to the farm and make them excel there; if he can not do that, he had better keep away from this kind of job altogether. We must, in picking our man, choose the type of man who can succeed in that part of his work.

If you agree that that is a fair proposition, let us ask where we can get this type of man. We have found that we can get men from many directions. Sometimes we can get a man who has been a first-rate principal of a school and we can make him into a good teacher of the type we need, one who can make good on the farm. Sometimes we can get a man who has been a good teacher of science. One of the most successful men we have had in our State is a man who taught science, but worked himself over into a vocational instructor who could make good on the farm. He got to be so good he went out of our service and for the past two or three years he has been in charge of the "county agents" of a neighboring State. But I am inclined to think more and more that we are going to be obliged to turn to the farm itself for a source of supply. What kind of man should we find on the farm? The self-made man, the man who has attended the farmers' institutes in the older days, the short courses offered by the extension service, the winter courses at the colleges; the man who has been thinking and studying in order that he might improve his farm practices; and, of course, the man who recently has had the advantage of individual instruction of the farm bureau man.

Then there is another type of man, the man who has graduated from the agricultural college and has been out farming for three or four years. Now, you say, "How can we hope to get such a man back into the agricultural teaching at the prevailing salaries when he is 'rolling in wealth,'" more or less, as a result of his farming efforts. Well, accidents sometimes happen in the best regulated affairs, and you sometimes get such a man.

Sometimes you get a man from the farm by accident, and then sometimes you get a man from a farm simply because he has come to the point that he asks you as a man did me, "I have wondered very often whether there are not more durable values in life than in turning a little more profit every year. I wonder if there is a place for me?" We had such a place. There is a type of man who puts the ideal above the dollar. Once in a while you get that type, one who comes into the work because he loves it, and when you get a man to work for love and not for money you have a good type.

I might mention just one more to round out the series. On the "North Shore," you know, we have large investments in estates, great developments of greenhouses, etc. A man who had been on one of those estates a good many years, had been made secretary of the North Shore Horticultural Society and had helped to build up the society, was a man of ability and strong personality. He had grown up on the estate, so that he was a past master of gardening and farming, had the respect of all the farm superintendents up and down the shore and knew the men personally. This man was selected for a county school to train boys for such work as his had been on North Shore estates.

Now, I do not mean to say that any one of these men came to us completely prepared for his job. Each came ready to begin. In our State after a number of years we still have to ask the men who have graduated from the four years' agricultural course to get more experience, to add to themselves more years before they can go into communities and make good on the farm and with the boys on the farms. We shall always have the problem of the training of teachers in service, and it is training teachers like these that we have undertaken in our service in Massachusetts.

THE TEACHER-TRAINER.

Following the question of what men need training in the service, you have the question of what kind of trainer you will get for them. We wanted a man who knew both the schools and the agriculture of Massachusetts, because time is so precious that we did not want a man who would spend a year getting acquainted. So we picked a man who had taught in Massachusetts, who had been a very successful high-school principal, and a man who had been a student of edu-

cation. It seems to me we must have that type of man. We picked a man who was a graduate in science at an arts college, afterwards obtained a graduate degree in education, and specialized in both school administration and in the methods of teaching. Then we wanted a man who had taught science in a high school; because, to be successful as a teacher of agriculture, you must be able to get the scientific side along with the practical, to draw from science things that will throw light on what the boys are doing and give them a real appreciation of their job. So we picked a man with successful experience in working out the correlation of science with farming activities and farming business. Then we wanted a man who had had experience in administration of vocational agricultural work, knew what it was and what it had to accomplish; and we found all of these qualities in the man whom the board selected as "teacher-trainer in agriculture."

Now, it seems to me if we are going to do effective teacher-training, it is necessary to have a man of about that sort of experience. He is likely to be an arts college graduate, or if not, he must be able to command the respect of superintendents, principals, and other teachers who have had such an education. He must have just as good training as anybody. You do not want your teacher-trainer to be criticized on the score of culture. He must be a man who, when talking methods, can defend his recommendations before the man who says "It can't be done." His sympathy with the administrator, his ability to estimate values of academic subjects, his knowledge of correlations in chemistry, physics, biology, botany, mathematics, civics, or history should be as well recognized as his knowledge of teaching method and his ability to interpret agricultural situations.

THE IMPROVEMENT PROGRAM.

Our program of improvement is a project method of teaching teachers how to teach agriculture while they are teaching. It is a method of making the teacher's job the foundation of the teacher's training. We asked our teacher-trainer, as the first thing he should do, to go from school to school, not hurriedly, to study the men in charge of the one-teacher departments, find out who the men were, study their boys, and to study the problems of those boys. In this way he would find out what means of training were feasible; he could study local conditions; and then if he saw any way in which the local man might better meet the needs of those boys in working out their problems, he could put him in touch with such means.

At certain centers he has assembled small groups of employed teachers, including also a few candidates for positions, for two days each week for about five successive weeks. During the school day he

has seen these teachers at their class work, and after school they have assembled for a round-table teacher-training course. These courses cover a few of the most important problems which have been discovered in the given locality, and therefore the courses are not uniform. So far they have dealt with such problems as "directed study," the methods of questioning that are best fitted to this type of teaching, the project study as correlated with project work, and with other school subjects. Later in the year he follows up these individuals while at their routine teaching to make sure of the application of the principles agreed upon, especially those phases which become a part of their professional improvement program.

This work closed just before Christmas so that the teacher-trainer might conduct at the agricultural college a short intensive course in special methods for teaching agriculture. Eight instructors are now attending this seminar course, preparing outlines and lesson plans and developing plans which are to be followed up in their own classrooms later. Each individual will be followed to his own school, and the acid test will be applied to all of the plans and principles developed at the college during January. Each instructor is also having conferences with subject-matter professors on the problems of most interest to him and his community. For each of these men this is a part of his professional improvement program, which is to be completed at his school concurrent with his regular duties.

At the close of this winter short course the schedule up to June will be similar to that of the fall months, individual conferences, assistance to the instructors, and teacher-training classes at certain centers for brief periods. During July there will be a duplicate of the January short course at the Massachusetts Agricultural College for such few instructors as may be free for such work and for prospective teachers, and the teacher-trainer will be accessible to a group of men for two weeks or longer.

It should be said that in Massachusetts we do not allow plant project men to absent themselves from their jobs during the summer. They must be on duty during the summer, except for perhaps a week of vacation, from seed time until harvest. Why? Because we do not want a man to have a chance to excuse himself for a failure. That is why these eight men who are with Mr. Heald in the short course are allowed their leave of absence at just this time in mid-winter. We can not spare them any other time of year. We can spare the live-stock men from their jobs just as well in the summer as any other season of the year.

Supplementary to that our teacher-training agent is planning with these men follow-up work, special study that they are going to carry on with his assistance throughout the year. We have always had in Massachusetts a professional improvement plan, a provision that

every man is required every year to do from a minimum of two weeks to a maximum of two months of work which would make him a better teacher. It has always been done with the good will of the instructor and even at considerable sacrifice on his part.

We are hoping that we may remove one awkward feature of the administration of our agricultural departments in Massachusetts by this itinerant teacher plan. It will obviate the necessity, we hope, of any prolonged absence of any teacher from his school. A man may come up to the college for two or four weeks, but never, probably, for two or three months in the winter. It is generally an advantage to claim part of the summer for professional improvement work, but if we can claim a little time every week during the winter we may get the equivalent of two months of professional improvement without the man being absent from the job at all.

In conclusion, let me assure you that this is not an emergency proposition. It is, and, as I see it, ought to be, a permanent feature of our work. We now have the Smith-Hughes funds and are able to put this work into effect. It may be (we are waiting to see what our experience dictates) that we shall get such a desirable type of man in our undergraduate teacher-training course in college that we can take him right into the service and find him better prepared than these different types of men among whom we have had to choose heretofore. If so, that is just so much gained. But there would still be possibilities for improvement with that type of man as with the other types.

THE WHOLE TEACHER-TRAINING PLAN.

This plan, combined with the apprentice teaching at the various schools, is our provision for itinerant teacher-training in Massachusetts. Resident training in the regular curriculum in agricultural education at the college, of course, will be a strong feature of our complete program of teacher-training; and this will be conducted in cooperation with the State agent for teacher-training. Thus we intend that our itinerant teacher-training shall put all parts of our agricultural teacher-training program, both pre-employment and after-employment, upon a job-and-problem foundation; and that it shall do this, from the outset, without omission, evasion, or delay.

IMPROVEMENT OF TEACHERS IN SERVICE.

By J. T. Wheeler,
Georgia State College of Agriculture.

One year of vocational agricultural instruction under the Smith-Hughes Act has passed. Many problems have arisen in regard to the training of teachers for this field of work. The conditions have been abnormal, and many special problems have of necessity come into being. Many of these special "war problems" will pass away with the return to peace and normal conditions. However, there seems to be one outstanding problem in the field of training teachers of vocational agriculture, which would have been a large problem, no doubt, had the vocational educational work been inaugurated under more favorable conditions and which is, under present conditions, much augmented. This problem is that of improving teachers in service.

Under the most favorable circumstances there would have been a dearth of well-trained teachers. Only a very few of our agricultural colleges had developed anything like adequate training courses for secondary vocational agricultural instruction previous to the passing of the Smith-Hughes Act. The institutions which had developed these courses had turned out comparatively few men. During the past year almost every State in the Union has established a training institution for the preparation of vocational agricultural teachers, but these have availed little as yet because of the fact that all of the students in the last two years of the agricultural college courses have been called into military service. This has rendered the immediate future outlook uninviting as far as the supply of trained teachers is concerned. For some years to come there will be relatively few well-trained teachers coming into the field of secondary agricultural instruction.

On the other hand, there has been inaugurated in every State a system of vocational agricultural education, and a relatively large number of new agricultural schools have been established. It has been estimated that there were about 700 men teaching vocational agriculture in these schools during the first year under the Vocational Educational Act. At the present time there are about 1,200 teachers devoting all or part time to this teaching. Many of these teachers are poorly trained except possibly in the practice of farming. Many others have come into this new line of teaching from the

field of general education with ample pedagogical training for their former work, but who know little about modern agricultural science and practice. Most of these teachers are, as the present times would indicate, men of mature years or men with families, who will not be in a position to leave their jobs and take up regular courses in the teacher-training institutions in the near future, if at all. This situation brings an added demand for well-worked-out courses for improvement of teachers in service. No argument is necessary to establish this point.

THE NEED.

It is not so clear in the minds of some that teachers who have had both experience and training need to continue their professional study. However, there is a well-crystallized opinion among educators and laymen everywhere that the teacher of any subject must keep step in the march of educational progress in order to be of the greatest service in any system of schools or to any educational institution. The last two decades have brought many advances in every line of educational thought and endeavor. The well-prepared and up-to-date teacher of 10 years ago is ill prepared and out of date to-day unless he has kept step in the march of progress. The aims of education now were not the aims of education then; the best methods in use then are not the best methods in use now. This rapid change has taken place and is taking place in the field of general education; and change will continue to take place as long as society and civilization continue to go forward. It is necessary to look back only a few years to see that, if a teacher wishes to continue to be of service to society, he must keep step in the march of educational progress from year to year.

In the newer field of vocational education the rate of change is still more rapid. This field of educational theory and practice is only in a formative state. It is true that we have talked about these things for a decade of more, but now they are upon us as real problems of education. A new national system of vocational education has been established almost over night. New legislative, administrative, and supervisory machinery is being worked out to meet these new problems. New plans and methods are being developed every day to meet the problems of vocational instruction. This is a period of experimentation out of which is coming, and will continue to come, good things.

What will become of the vocational teacher to-morrow who fails to keep step with to-day's progress? To ask this question is to answer it.

The movement of educational progress is not the only movement with which the vocational teacher must keep step. He must keep

up-to-date in the theory and practice of his art as well. The teacher of vocational agriculture must keep abreast of the progress in the theory and practice of plant and animal production. He must not be blinded by his own local successes or difficulties to the general progress of the whole field of agricultural theory and practice. One does not have far to search to find that the theory and practice of economic agricultural production is rapidly progressing. In fact, the theory of production is far ahead of actual practice, and the agricultural teacher is often called upon to inaugurate new lines of practice. It is essential, in this connection, that the agricultural teacher keep well up-to-date or ahead of present farm practices as well as abreast of scientific investigations. There is a demand for constant improvement along this line, and as agricultural information becomes more and more disseminated the more skilfull must the agricultural teacher become in order to meet the new demands of the farm and the farmer.

With these increasing demands for continued improvement, the teacher of agriculture must reconcile himself to his fate; he must become a student of both education and agriculture in all of its important relations. His aim must be to bring theory and practice together in both fields. This will make it imperative that he acquire a progressive professional attitude toward his teaching, and a progressive and practical attitude toward production.

There is a tendency on the part of some teachers, who have had more or less agricultural experience and training (but who have had little or no training or experience in teaching agriculture) to feel that they not only know all about the problems of agricultural production, but that they also know all about the teaching of secondary agriculture. There are others who have had more or less training in general education and the sciences, but have had little or no training in the field of agricultural production or secondary agricultural instruction, and yet they feel they know how to cope adequately with the problems of vocational agricultural instruction, because they have been successful teachers in other fields. There are still others who feel that the State certificate to teach vocational agriculture is a guaranty that they know how to teach agriculture well enough already. Fortunately these groups are few and the following of each is small.

It may be that the institutions which have trained these men are at fault to some extent at least in this regard. Sometimes the training courses have a tone of finality which might foster this attitude on the part of those so trained. Although during recent years much information has been accumulated through scientific investigation in the field of agricultural production and instruction; yet by no means has the progressive stage in this field of investigation passed.

No teacher-trainer should attempt to offer as final our present knowledge in any field.

Further, the teacher-training institutions must realize that there are many problems of vocational teaching which can not be solved within the four walls of a college classroom. Perhaps the most difficult problems of teaching vocational agriculture can be met and adequately dealt with only with the teacher on the job. Any adequate teacher-training scheme should aim to aid the teacher both before and after he enters upon his work. The teacher-training institutions must provide the prospective agricultural teacher with the best and most up-to-date technical and professional information that is available, but it must also leave the prospective teacher with the impression that this is a great and new educational field with many problems, as yet unsolved; that no man or institution has a monopoly on the knowledge and means of solving these problems; that each vocational agricultural teacher is needed in working out these problems; that each teacher needs all the help he can get from without; and that his work must be measured by that of others before he can claim real progress in his profession.

THE AIM OR PURPOSE.

Much is now being said about the need for the improvement of our present corps of agricultural teachers. I do not hope to give anything new in this connection, but I should like to set forth some of the aims and principles upon which I think the work for the improvement of teachers in service might be based.

First of all, the professional improvement work should endeavor to bring the teacher to a realization of the actual problems of his school. Briefly, some of these problems are as follows:

(*a*) The physical features of the school or classrooms that might influence the efficiency of both the pupils and the teacher.

(*b*) Problems dealing with the school organization, curriculum, schedules, financial support, etc.

(*c*) Teaching equipment, apparatus, books, other reference material, and the arrangement of this material for ready reference, local illustrative material, etc.

(*d*) Special methods in class, laboratory, and field work, planning and execution of definite lessons, laboratory and field exercises, correlation with project work, etc.

(*e*) Project work, choosing, outlining, and planning projects for a community; supervision of planning, studying, records, field work, correlating with other agricultural work, etc.

Another phase of the improvement work should deal with problems closely related to those mentioned above, but outside of the agri-

cultural class and classroom. In this connection, the agricultural teacher should become aware of his relationships and responsibilities to the community life both within and without the school. Some of the points in this regard are these:

(*a*) The agricultural teacher should have a sympathetic and understanding attitude toward all the work given in the school.

(*b*) He should cultivate a cooperative spirit in all dealings with other teachers in the school, and with all activities of the school.

(*c*) He must have an active interest in community activities outside of the school, especially in farm organizations, farmers' meetings, etc.

(*d*) When he understands the scope of the present activities, needed work should be initiated by him in the form of extension activities.

(*e*) The opportunities offered the agricultural teacher by the home project work for getting personally acquainted with his community must be utilized.

Any system of professional improvement for teachers in service should take into consideration the fact that progress can be made in improvement work only in proportion to the amount of vital interest the teacher himself has in meeting the problems arising in connection with his job. In order to keep the teacher on the job, and keep him interested in continuous improvement some natural incentives like the following should be held out to him:

(*a*) A system of promotions based upon efficiency as a teacher of vocational agriculture; a system of promotions based on ability to cope with the problems enumerated above.

(*b*) Promotions on this basis should carry salary increases as a primary incentive.

(*c*) The teacher training institution should be able to grant advanced college credit for professional improvement work done under its direction.

(*d*) Required improvement work for State certification might have a place here.

Still another aim of the work for the improvement of teachers in service should be to furnish the teacher on the job with adequate means of solving his problems. It is not enough simply to point out the problems and get the teacher interested in meeting them; the teacher in the field must have aid when and where he needs it.

(*a*) Some aid can be furnished in this connection through the literature on the special problem under consideration.

(*b*) The main source of help, however, can best be furnished by an adequate intinerant teacher-training staff working along definite lines.

The last point that I wish to bring to your attention in this connection has to do with the professional attitude of the agricultural

teacher toward his work and his coworkers. The professional improvement work should aim to foster a professional spirit on the part of our teachers of agriculture. I think, however, that little time need be spent on this point. If we are able to get the teacher alive to the problems of his school and bring him to a working understanding of his relationships and responsibilities to the community life in which he lives, if we can hold out to the teacher the proper incentives to engage his best interest in solving these problems, and bring to his aid adequate means for assisting him in meeting these difficulties, I think the professional spirit will come of itself without much coaxing.

PRINCIPLES OF ORGANIZATION.

We noted at the outset that the needs of our present corps of agricultural teachers are many and varied. They vary widely, not only in the kind and amount of their training and teaching experience in the field of vocational agricultural instruction, but they differ also in some degree in regard to their ability to adapt themselves to this type of teaching. From this fact, we may conclude that the first thing to consider is the fact that the improvement work for teachers in service must not be a "cut and dried" piece of work, but must be elastic and adaptable to the needs of the individual teacher. In other words, the needs of the individual teacher must determine the kind of improvement work that particular teacher shall do.

The fact that the improvement work must be based upon the individual teacher's needs, suggests the next point, namely, that the improvement work must be very definite. It is generally conceded that a great deal of the work, if not all of the work, that has been done in the past under the name of "improvement of teachers in service" has been too general in its nature to be of any great service to the average teacher. Another fault that has been generally acknowledged is the fact that much of the improvement work has been illy organized. The "reading course," the "visiting day," the "teachers' meeting," etc., have rendered valuable aid to the teacher on the job; but they have been, as a rule, too general and too poorly organized for the best results. The reading course has been of particular service in many school systems, but it has been the exceptional teacher and not the average teacher who has profited even by this work. It should be recognized, in this connection, that books on education, technical agriculture, and allied subjects are at best, and of necessity, very general. They are not arranged for self-directed study, and in their entirety appeal to relatively few teachers or readers. The average teacher reads the assigned book or article, if at all, because he has to pass an examination or write a report on it. He will, perhaps, get a general impression of the whole book

and be able to make a good mark on his report or examination, and still be little better off professionally than he was before. In fact, it might be that such work would prove a hindrance instead of a help to the teacher.

In this connection, an incident might be mentioned which took place some years ago in a high school over which I was supervisor. On the second week following the county institute, as was the custom, each teacher was asked to point out the most helpful things that had been obtained from the institute courses that year. One of our new teachers in this particular high school who was summing up the situation for the first time replied: "There were so many good things that I really can't tell what will prove of assistance to me in my work, but," the teacher continued, "the thing that impressed me most was the fact that the county superintendent had a whole new set of jokes this year." General improvement courses of any kind are liable to leave a vague general impresson, and often the emphasis, as far as the teacher is concerned, is placed on the relatively nonessentials. Such misplaced emphasis may result in ill rather than good. At least, such general work will not bring results that will inspire a high professional attitude on the part of the teacher. If the improvement work is not well enough thought out to make it definite, or, if it has not enough subject content to make organization possible, then it had better not be attempted.

The improvement work for teachers in service should not only be elastic and definite, but it should also be related to the work of the teacher. The teacher of vocational agriculture has so many difficulties in his own work that he does not need to assume general or imaginary situations in order to discover problems to solve. In fact, the agricultural teacher has so much to do and so many problems to work out that to put upon him outside tasks would show shortsightedness on the part of those in authority. What should be done in this connection is simply this, the improvement work for teachers in service should aid the teacher to discover his instructional problems and then direct him to the best sources of information for their solution. Professional improvement work should not be approached as a task separate and apart from the teacher's school problems, but a large part of the improvement work should be definitely related to the everyday work of the teacher. It should actually aid the teacher to do his work from day to day, and to do it better than he otherwise could do it. If the improvement is not reflected in the teacher's work, there is something wrong.

Another principle in connection with organizing the work for the improvement of teachers in service should be mentioned here. In order to meet the needs of the progressive teacher, the improve-

ment work must be progressive in its nature. While it is true that new problems will be continually coming to light from year to year, even if a teacher should go over the same work again and again, my point here is this: An instructor who is teaching vocational agriculture for the first time will certainly need a different type of professional aid than the man who has been teaching agriculture for a number of years. Any professional improvement work for teachers in service should take this fact into consideration and provide for the growth of the agricultural teacher both professionally and technically. It is this growth that will make it possible for the teacher to stay in the work, and at the same time make the work better for his having remained in it.

In this connection I should like to mention briefly just one more point. It is essential to the success of any system for the improvement of teachers in service that the work be properly supervised. As it is necessary to have a definite piece of work to do, so is it also necessary to see to it that the work is carried out. This supervision can not be done by casual visits to the school. It must be done by one who understands and is so much interested in the progress of a given school that he is willing to spend hours and days, if need be, wrestling with the problems of the teacher on the job. The supervision of instruction and not inspection is the itinerant teacher's field.

ORGANIZATION.

It should be clear from the foregoing discussion that the professional improvement work for teachers in service should be grouped about a few definite principles for the purpose of meeting some specific teacher-training problems which lie in the field outside of the training institution itself. I believe this work should be a definite part of any teacher-training scheme.

It is not possible nor advisable to attempt in any measure to solve all of the problems which may confront any given teacher in a given year. It should be our ultimate aim to meet and solve all of the problems we have here discussed; still we must not lose sight of the fact that many of our teachers have had little or no training for their work, and consequently we must go slowly. It would be an easy matter to bring up so many problems with a given teacher at a given time that he would be much confused. It is better, in this connection, to go over the whole field with the teacher and discover just what he needs most and when he needs it, and then organize these activities into a definite teaching project, if you please. The nature and scope of the project depend upon the specific needs of the teacher in question.

Inasmuch as the agricultural teacher is more or less conversant with the "home project" idea, an analogy between this idea and the

project plan for the improvement of teachers in service might be suggestive. It is the aim to have the teacher and the teacher trainer work out together some of the problems that must be met in a given school. Then organize these problems into a plan of procedure, so that the teacher on the job knows just what he must do and how he should do it. The teacher will have an instructional project, while his pupils will have production projects. He will have a project dealing with the problems of teaching boys vocational agriculture; they will have projects dealing with the problems of growing corn, cotton, and so on. As the production project focuses the attention of the boy upon specific problems in production, so should the professional improvement project focus the attention of the teacher upon his special problems. As the boy's project creates a life situation through which his scientific and agricultural knowledge can be made to function, so the professional improvement project should create for the teacher a real situation in which he will be called upon to apply his professional and technical knowledge and skill. Again, as it is necessary for the boy to get new information or renew his information on many phases of his production problems, so will the teacher, on the job, need sources from which to get new information and renew much of that to which he has been exposed and did not "get" during his static training period. In other words, the "Project method" or idea is not different, when applied to the teacher's problem, from that applied to the problems of production in any field, but the project itself is different.

While it is not hoped that the ideas I have presented here will meet all of the problems arising in connection with the organization and administration of professional improvement work for teachers in service; still, I believe that if we can analyze the needs of the teacher on the job and make his needs our aim, if we can organize the work from the standpoint of the needs of the individual teacher into a definite project related directly to the teacher's everyday activities, and if the work is such that the teacher may progress from one project to another, we will be taking a step in the right direction.

ORGANIZATION FOR TEACHER TRAINING IN AGRICULTURE.

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The present paper is based upon information obtained through letters of inquiry which were sent to the heads of the departments of agricultural education in all American colleges of agriculture where teacher-training courses in agriculture were known to be offered and to the agricultural supervising officers in the State departments of education where such officers are other than the teacher-training specialists at the colleges. Replies were received from 28 colleges and from 10 State departments.

It is not the intention in the present paper to recommend any special form of organization for teacher training in agriculture nor to suggest appropriate administrative relationships, but rather to call attention to the prevailing working conditions and the methods employed for solving the teacher-training problems as reported by the persons in charge of the work in the several States.

The present paper, furthermore, makes no pretense for completeness, but limits itself to four of the conspicuous phases of the work of teacher training in agriculture, namely: (1) The facilities for practice teaching, (2) the training of teachers while in service, (3) the certification of teachers, (4) the relationship between teacher training and other educational activities of the State.

FACILITIES FOR PRACTICE TEACHING.

The work of agricultural teacher training in many of the colleges is a recent undertaking, and the facilities for practice teaching have not been fully developed. Even in the colleges where the work has been in progress for some time, rapid changes are taking place. At the present time[1] the practice facilities provided may be included in one of the following catagories:

1. *Opportunity for teaching classes in the so-called "schools of agriculture" connected with the colleges.*—These schools enroll students of secondary grade, but generally of college age or older. Six agricultural colleges, those of Colorado, Kansas, Maine, Maryland, Nebraska, and Texas, up to the present time have depended mainly upon this means for supplying practice in teaching. Some of

[1] October, 1918.

these institutions are planning additional facilities to meet the increased and more exacting demands.

2. *Cooperative arrangements with the local high schools.*—Although not always definitely stated, such schools embrace agricultural departments and provide facilities for a limited number of apprentice teachers. In some cases the agricultural work in the high school is wholly under the direction of the teacher-training department of the college and in other cases the full control of the work is retained by the local authority, in which cases critic teachers from the college accompany the student teachers. Six agricultural colleges, those of Iowa, Michigan, Oregon, Vermont, Virginia, and Washington, have adopted this plan. Three of these institutions have indicated their intention of extending their facilities as soon as warranted by the demand.

3. *Provision for a limited amount of practice in various near-by high schools which embrace agricultural departments.*—This provision differs from the one just described, mainly in that it takes care of a larger number of apprentice teachers. In most such cases also the regular teacher in the high school is depended upon mainly to supply the criticism, but in some cases the apprentice teachers are accompanied by critic teachers from the college. Eight agricultural colleges, those of Illinois, Massachusetts, Minnesota, New Jersey, North Carolina, Ohio, Pennsylvania, and South Carolina, have made provision for this method of practice teaching.

In Ohio the agricultural instructors in three near-by high schools are members of the department of agricultural education of the university. These schools and three others with agricultural departments are used for practice in teaching.

For one semester prospective teachers who are enrolled in the course in observation and practice teaching visit these several schools regularly one day a week, thus becoming familiar with the methods employed by the critic teachers, the equipment provided, the illustrative material on hand, and the plans followed in conducting field trips, and supervising project work at the pupil's home. During the second semester of this course each student takes charge of these schools for a certain definite period, probably not to exceed one month, and thus plans, conducts, and follows up his own work with the benefit of the suggestions and criticisms of the critic teacher. Because the conditions in these teacher-training schools are so ideally rural, the student teachers thus have an insight into schools which are very similar to schools in which they will later teach out over the State.

4. *Training schools under the control of the teacher-training institution.*—Of the institutions reporting, only three, the universities of Arkansas, Missouri, and Wisconsin, maintain training schools for practice teaching in agriculture. The University of Illinois has such a school under construction which will provide ample facilities. This plan is adapted especially to localities where there are available

many secondary students. The great advantages claimed for the plan are that the conditions are under complete control and that the school may be used as a laboratory for both investigation and demonstration of methods.

5. *The employment on salary of students as apprentice teachers in various high schools throughout the State.*—This plan provides for giving teaching experience and an opportunity for observing agricultural teaching under normal conditions. It also serves to keep the teacher-training department in close touch with the teaching problems throughout the State. The plan was first developed in New York State, and for this reason it is generaly known as the New York plan. The distinctive features of the plan as developed in New York are as follows:

(*a*) Through a cooperative agreement between the teacher-training department of the college and the agricultural division of the State department of education, senior students may be employed as assistants or apprentices in certain approved high schools where agriculture is being taught.

(*b*) The State department issues to approved senior students certificates to teach for one semester.

(*c*) To insure continued assistance in each of the accepted schools, one senior student is sent for the first semester and another for the second semester.

(*d*) Apprentice teachers are given certain readings relating to their work that are to be studied during their apprenticeship.

(*e*) Each apprentice teacher is required to send a written report to the college once a week. This report consists of a statement of the activities of the past week and of one lesson with the apprentice's criticisms on it after he has taught the lesson. Helpful criticisms are sent to the apprentice teacher upon receipt of his report.

(*f*) The seniors so employed receive residence credit for one semester and collegiate credit for three semester hours toward graduation.

(*g*) The seniors receive for their services $30 per month, which amount is about sufficient to pay their traveling and living expenses.

(*h*) One-third of the assistant's salary is provided by the State. The remaining two-thirds is provided by the school, but such amount is reimbursed by the college in consideration of the facilities supplied.

(*i*) The work of the apprentice teachers is supervised by the principal and the agricultural instructor of the local school and through occasional visits by a representative of the teacher-training department.

(*j*) The plan provides for the use of a near-by high school as a teacher-training laboratory where methods of teaching may be investigated and demonstrated.

This plan has met with quite general approval, but on account of its expensive nature, few institutions have put it into operation. The expense is not so great as it first appears, for the money used to pay the teachers is actually devoted to the teaching service and many schools, by this means, are provided with a second teacher without expense. The agricultural colleges of Connecticut, Maryland, New Jersey, Oregon, Virginia, and Washington have indicated their intention of inaugurating this plan when the need warrants it and when provision may be made for it.

The agricultural colleges of both California and Georgia have adopted this plan in modified form. The method of procedure in California has been described as follows:

> In 1914 the department of agricultural education of the University of California arranged for practice teaching to be carried on in the high schools throughout the State. Each apprentice teacher was placed in a school under the direct supervision of a good teacher of agriculture already in the school. This work was also supervised by the head of the department at the University.
>
> The teaching plan for each lesson was required of each student. This teaching plan was submitted to the regular high-school agriculture teacher for criticism before being given to the class, and the teacher's criticisms were written in the form of suggestions as an appendix to the lesson plan. After the lesson had been presented by the apprentice teacher, criticisms of its presentation were written as an additional appendix to the plan by the regular agriculture teacher. When the person in charge of the teacher-training work inspected the work of the apprentice teacher, he was also, through this permanent record, enabled to get approximately as good a check on the high-school agriculture teacher as on the apprentice teacher.

The work in Georgia has been described briefly as follows:

> We have no facilities for practice teaching. We are doing our "apprentice" teaching under the "project method" with the teachers on the job. This has been forced upon us, but it appears that it is a very workable scheme. The teacher goes directly from the training institution to the job. He may be placed in a two-teacher school as the second teacher, or, if he is strong and has had some teaching experience, he may take a school of his own as a project the first year.

In Massachusetts a similar plan is followed, differing mainly in the fact that the apprentice teacher may or may not have had professional training during his college course, and may be assigned either as an assistant teacher or as the only teacher of agriculture in the school. The plan is known as the project plan of training teachers to teach agriculture and is fully described under the heading of Training Teachers while in Service (see p. 5).

Only five colleges indicate the amount of time required in practice teaching: California, 18 weeks; Colorado, 12 weeks; Illinois, 18 weeks; Michigan, 6 weeks; New York, 18 weeks; Ohio, 4 weeks. Additional time is sometimes required for observation. For example, Ohio State University, as previously indicated, requires one day

per week for one semester in observation work as a preparation for the actual teaching to follow.

TRAINING TEACHERS WHILE IN SERVICE.

The present inquiry has revealed the fact that while there is much interest in the subject of training teachers in service, very few of the teacher-training specialists and supervisory officers fully appreciate the significance and possibilities of the practice. A common conception of the work comprises simply the holding of conferences of institutes or the offering of correspondence courses, of short courses, or of graduate work at the higher institutions.

In all States participating in Smith-Hughes funds for the training of teachers in agriculture there is a supervisor of secondary agriculture or some other official with similar duties. These officials, especially in States where the work has not been extensively developed, are able to assist the agricultural instructors in the schools and such assistance contributes to their training. In 22 States[1] the supervision is performed either wholly or in part by an officer who is officially connected with the teacher-training institution, and who in many cases divides his time between the training of teachers at the college and supervising agricultural instruction in the schools throughout the State. In each of these cases the officer undoubtedly devotes considerable attention to the training of teachers in service.

The work as it is being developed in a few States comprehends far more than this. Its development has been hastened probably by the shortage of well-prepared teachers, the belief being that with a good teacher trainer in the field a lower grade of teachers may be employed without materially affecting the efficiency of the general program. The most conspicuous examples of teacher training in service from the standpoint of agriculture are the following:

Georgia.—The State board for vocational education this year engaged one-half of the time of a member of the teacher-training force of the division of agricultural education for the purpose of training men in service. This training work in the field is to follow a systematic plan by furnishing teachers with courses of study, lesson plans, project study outlines, and plans for studying the same, aids in developing laboratory material and equipment, and such other service as the teacher-training men through personal visits are able to provide.

Illinois.—We have a traveling instructor in agricultural education, a member of the staff of the department at the university, giving his whole time to the training of teachers in service.

Massachusetts.—The Massachusetts State Board of Education has employed a man who devotes his time to the training of teachers in service and who makes his headquarters at the State college. In addition to the instruction

[1] The colleges of Arkansas, Connecticut, Georgia, Idaho, Illinois, Kansas, Kentucky, Maine, Maryland, Missouri, Montana, Nebraska, Nevada, New Jersey, North Carolina, Ohio, Oregon, South Carolina, South Dakota, Tennessee, Washington, and West Virginia.

and assistance given through personal visitation, he renders helpful service by supplying illustrative material, by the issuing of circular letters at regular intervals, and by the holding of conferences.

Another conspicuous feature of the Massachusetts plan is that which provides for two months of professional improvement on the part of each agricultural instructor in the service. The professional improvement project undertaken by the individual instructor is determined by his greatest need and must meet with the approval of the State department's specialist in teacher training.

Since professional training rather than technical training is more easily provided after employment, the Massachusetts State department of education prefers to employ teachers who are deficient in the former rather than the latter. In other words it is believed that there is not sufficient time within the four-year college period to obtain adequate training in both professional and technical subjects.

It will be observed that in Massachusetts the training of teachers in service is a function of the State department of education, but close relation with the teacher-training institution is assured by requiring the department's teacher-training specialist to make his headquarters in the department of agricultural education at the college.

Minnesota.[1]—(*a*) Follow-up work by means of which teachers in service may have the benefit of critical supervision, by representatives of the department of agricultural education.

(*b*) Long summer courses of approximately 12 weeks given to teachers with good previous scientific training and practical farm experience, and formulated to give the training in subject matter and agricultural teaching methods necessary for the next year's work, this to be followed by a similar course the succeeding summer to prepare for the year following.

(*c*) Short courses given at the university dealing directly with the immediate problems of the high-school agricultural department.

(*d*) Conferences conducted in various parts of the State by representatives of the State department of education and the department of agricultural education of the university.

(*e*) Close constructive supervision by State supervisory officers competent to direct agricultural instruction.

New Jersey.—We require the attendance of all teachers at the monthly conferences held at the State Agricultural College, where we discuss plans for carrying on the work of the schools. Specialists of agricultural and educational subjects give lectures to the men. The expenses of the teachers who attend these conferences are paid by the local boards. We uphold also that school boards allow teachers of agriculture to have a four weeks' vacation following the Christmas holidays and that the boards insist on the teachers using this time for professional improvement. We hope to make arrangements with the State College of Agriculture for special lectures to be given to our teachers during this four-week period.

[1] Method used in Minnesota as described by the professor of agricultural education at the University of Minnesota.

New York.—Under the Smith-Hughes plans a cooperative arrangement has been made with the State department of education by which the teacher-training department at the college will undertake to aid in the training of all our graduates who go into agricultural departments of high schools and of such other teachers as specially request the services of the department in this line.

This work will be distinct from the inspection work of the State department. This department will have no relations with the local school boards, except in so far as those relations may be purely for information with respect to the problem of aiding the teachers. Arrangements have been made with the State department for the exchange of reports of visits to agricultural departments. This department will report confidentially matters that come under its observation during trips to schools for teacher-training service, such as would require executive action on the part of the State department.

On the other hand the State deparment will indicate to this department such needs for pedagogical help as it may observe in the State inspection work.

New York's plan for training teachers in service is closely related to its apprenticeship teacher scheme, which provides practice for new teachers. Although not wholly developed, the plan provides that there shall be two members of the staff of the department of agricultural education at the college engaged in the preparation of students for immediate teaching service. For the first semester one of these teachers will work with students who are planning to serve as apprentices during the second semester and the other teacher will supervise the work of the apprentices and other agricultural instructors in the field. During the second semester the two teachers exchange places.

Oregon.—The recently organized department of agricultural education is canducting extension classes and directing itinerant teacher training.

Texas.—An itinerant teaching staff is maintained to visit the teachers on the job and assist them in every way that conditions indicate. Charts and slides are furnished, and circuits are formed for their distribution. A package library of bulletins and clippings is being provided. A monthly letter is sent out from the department. When a group of teachers can assemble at regular intervals, it is proposed to give a consecutive course of instruction for which college credit can be given.

CERTIFICATION OF TEACHERS.

In all but a few States the law requires that candidates for teaching positions must meet certain requirements. Until recently the requirements for agricultural teachers in most States were not different from those for teachers of academic subjects. Many States now prescribe special requirements for teachers of various subjects. In most States now an effort is being made to have the requirements for agricultural teachers in general conform to those for teachers in schools supported by Smith-Hughes funds, but in some States there are two sets of requirements—one for general teachers of agriculture and one for teachers of vocational agriculture in the Smith-Hughes schools.

To show the range of the requirements for certification, those of California and Colorado may be cited:

California.—The State requirement for the regular high-school certificate is five years of college work or four and one-half years of college work, plus two years of teaching experience. In order to meet the requirements of the Smith-Hughes work, however, two years of education beyond the eighth grade, or the equivalent of two years of high-school work, plus eight years of successful farm experience, is the minimum requirement. The practical experience decreases as the educational experience increases, though not quite in the same proportion.

Colorado.—There are two sets of requirements, one imposed by the State law which designates certain courses in education for the completion of which a State diploma is granted. Our State board of education is charged with the duty of inforcing this law. The other set of requirements is imposed by the State board of vocational education and is as follows:

"(*a*) Age not less than 21 years.

"(*b*) Education: The completion of a four-year agricultural course in an approved agricultural college, requiring 15 high school units, for admission.

"(*c*) Experience: Not less than two full years of actual farm experience in labor or management, at least one year of which shall have been continuous.

"(*d*) Personality: In order to be approved, the applicant must have such personal qualifications as will fit him for leadership in the community and for directing the students in their school work and home projects."

It may be seen, therefore, that to teach vocational agriculture in California only two years' schooling beyond the eighth grade is required, while in Colorado and most other States eight years' schooling beyond the eighth grade is required. These two examples show also a wide range in the farm experience requirements, but in inverse order.

The impetus given the movement for secondary agricultural instruction by the passage of the vocational education act produced a great demand for teachers. So insistant was the demand, even before the war called many instructors into the service, that it was almost impossible to obtain teachers who could qualify for certification. During the present school year, on account of large numbers of teachers entering military service, the certification laws were quite generally modified, or ignored. Of the institutions reporting, all but one stated that the demand for teachers was greater than the supply. The condition in States employing many teachers was of course much more acute than in those where the work has been established but recently and where few teachers are employed. The reports show that in all but six of the States reporting, the standards have been somewhat lowered. In one case a woman has been employed, while the specific requirements exclude women as teachers of agriculture. In a number of cases emergency certificates calling generally for a lower amount of professional training and frequently for a lower amount of technical training have been granted. The extent to

which standards have been lowered as a result of the shortage of teachers is fairly indicated in the following statements:

Arkansas.—Emergency qualifications for teachers of agriculture in Arkansas are as follows: A. B. or B. S. degree from a standard college, two units of college science, farm reared, one school year's work with the itinerant instructor and one summer spent at the University of Arkansas pursuing agricultural studies.

Georgia.—To secure teachers for our present needs the State board will accept the following modified qualifications:

(*a*) An education extending at least two years beyond the high school in which at least 50 per cent of the time was devoted to the study of agriculture.

(*b*) Graduation from college with training in general science, supplemented by a summer course for vocational teachers and practical experience in agriculture.

(*c*) A successful experience of at least two years in teaching agriculture.

Maine.—In the present crisis we can not get enough teachers with standard qualifications. Therefore, college graduates who have had a short intensive course in agriculture will be approved for one year's instruction in 1918–19.

Maryland.—To meet the scarcity of teachers, standards have been lowered to this extent: Professional certificates are issued to persons who agree to take special teacher-training work in agriculture in the summers.

Michigan.—To maintain the supply we have secured men with farm experience who are graduates of some college or university, with considerable teaching experience, and have given them a special course which includes the pedagogy of agriculture.

New York.—To provide extra teachers we have planned what we term an emergency course. This is an intensive course which ran nine weeks during the past summer and was given to a selected group who at that time were exempt from draft, had suitable farm experience, much teaching experience, and sufficient educational foundation to enable them to do a large amount of technical agricultural work in a short period.

North Carolina.—Our plans for the certification of teachers state that teachers of agriculture must be graduates of agricultural colleges giving a standard course. We then make the exception, as an emergency measure, of granting special certificates to the men taking the six weeks' special teacher-training course for men who have had good experience, both as teachers and farmers and who have had courses in science during their college training.

Oregon.—The only way in which we have lowered the standard is that we have accepted teachers who have not had 15 units in education nor special training in agricultural education and have allowed them to make up the deficiency after entering the service.

South Carolina.—Under normal conditions our law and plans would practically require a teacher of agriculture to be a graduate of an agricultural college. Last summer we gave a special course for the preparation of teachers for immediate needs. We selected for the purpose some of the best school men in the State who had had teaching and farming experience, and, so far as possible, quite a bit of science and scientific training in agriculture.

Texas.—Standards have been established to take effect in 1921. In the meantime, teachers with qualifications approaching these standards have been accepted. Good teachers, though rather poorly prepared in technical agriculture, have been accepted and assistance has been given them through itinerant teaching. A special six weeks' course also was offered during the summer, in which courses in subject matter and methods of teaching were given.

In most cases the standards for State certification are regarded as satisfactory under normal conditions. In a few cases the State laws are regarded as unsatisfactory. The most common deficiency in these cases is the failure to provide for adequate technical training. In Iowa, for example, a graduate of any college may obtain a third-grade certificate, which permits him to teach for five years without any limitation as to subjects. In other States, like Washington, where 30 hours in education are required, the proportion of work in professional subjects is so high that it is difficult to induce students to prepare for teaching. As a result of the influence of the Smith-Hughes regulations concerning the qualifications of teachers, the defects in the certification requirements are rapidly being revealed and the laws are gradually becoming better adapted to the needs of special subjects.

RELATIONSHIP BETWEEN TEACHER TRAINING AND OTHER EDUCATIONAL ACTIVITIES OF THE STATE.

In only one State of the Union, Idaho, are all the educational activities centralized under a single board of control. The fact that the public-school education and higher education generally are separately administered has made it difficult for any State to plan and prosecute a single well-connected program of education. For many years the chief difficulty arising from this condition has been that of connecting up the program of instruction in the secondary school with that of the college. Even yet the agricultural colleges not only refuse to give full credit for the agricultural work carried on in secondary schools, but require students to repeat such work after entering college. Of course much of the high-school agriculture in the past has not been worthy of recognition by the colleges, but the instruction given in many of the high schools to-day is equal, if not superior, to that given in some of the colleges. The attitude of the colleges in this respect has resulted in an almost universal disposition on the part of high-school principals to recommend a strictly academic, rather than a vocational, course for high-school boys who later expect to enter an agricultural college.

The attitude of the colleges in this respect has tended to retard the development of vocational courses. To meet the requirements of the colleges and to insure some degree of continuity the high-school program generally has been planned to satisfy the needs of the small proportion of students who continue their education beyond the high school. As a result of such a practice the great majority of high-school students leave, either before or after graduation, without having had any occupational training.

For most high-school students the course in agriculture will be the educational terminus, but well-taught vocational courses usually

reveal qualities of leadership, and individuals displaying such qualities should be allowed and encouraged to continue their training beyond the range of the high-school course. The program of instruction, to meet the needs of such students, it is believed, should be so unified as to insure a large degree of continuity, but the practice of administering education through two distinct systems is not conducive to the unification of educational programs.

The administration of the educational program in the several States has been complicated further by Federal legislation which provides for the promotion and encouragement of certain forms of education through two or more agencies within the State. The Morrill, Hatch, Adams, and Smith-Lever funds are administered through the institutions in charge of higher education, and the Smith-Hughes funds are administered through the board in charge of public education below college grade, or through some special board created for the purpose.

The junior extension work, or the so-called boys' and girls' club work, and to some extent the county agent or farm demonstration work supported by the United States Department of Agriculture and promoted by the agricultural colleges is related logically to public education below college grade. The replies to the present inquiry indicate that the working relation is not as close as it should be, but that many attempts with varying degrees of success have been made to improve conditions in this respect. Since the agricultural teacher-training departments in the colleges are so intimately connected with the school system, an effort has been made in many colleges to bring the junior extension work into such departments. In four colleges, those of Iowa, Minnesota, New York, and North Carolina, it has been so placed. While those in charge of the work in these States believe that such an arrangement is an advantage, they realize that it is not a wholly satisfactory solution to the problem. They contend that it needs the administrative backing of the school officials and that the college participation should be limited to subject matter recommendations. The following, taken from one of the replies, is typical of many expressions of opinion:

> Boys' and girls' club work should be organized through the public educational facilities already established by law and custom, that is, State boards of education, county and city superintendents, and public school teachers. Until that is done boys' and girls' club work will not have a definite and permanent standing. It should never have been permitted to develop as something outside of the system of public education. It can probably be kept alive a few years more by "beating the drums and sounding the cymbals," but eventually it must become a part of organized education and not follow its present piratical path. When so organized its results may be somewhat less spectacular but will be more stable and will constitute more nearly a real education for the youth.

All but three of the teacher-training departments reporting claim that they have nothing more than cooperative relations with the junior extension work and in few cases not even cooperative relations are said to exist. Two of the replies received contain a recommendation that the so-called club work of the college be limited to boys not more than 14 years of age and that the secondary schools should be responsible for the work with older boys.

The need for closer relationship between the two chief agencies in control of education within the State has been emphasized by the provision of the Federal Vocational Education Act relating to the training of teachers. Teacher-training is a function of the higher institutions, but in those institutions that participate in the Smith-Hughes fund such a function through this provision passes, at least nominally, from the control of one governing body to another. In the correspondence relating to the present inquiry such statements as the following may be found, which show that the control of this phase of higher education is regarded as under the State board for vocational education:

"The work of the department of agricultural education at the college is subject to the approval of the State board for vocational education."

"The college acts as agent for the State board in the training of teachers in agriculture."

"The State board for vocational education has charge of all Smith-Hughes work in the State, including the training of teachers."

"According to our State laws, teacher-training work in agriculture is under the direction of the State board of vocational education."

It may be seen, therefore, that the State board of education, if in control of secondary vocational education, may control also certain phases of higher education in institutions participating in Smith-Hughes funds. This is a step toward centralized control, and may be indicative of a better understanding of the need for even a closer relationship.

Various States have attempted in their own way to bridge the gap between the two branches of the educational system, or at least to provide for the free exchange of information concerning administrative action. In several States, for instance, the superintendent of public instruction is a member ex officio of the governing board of the State higher institutions. In other cases the president of the State university is a member of the State board of education. Many other devices have been employed to insure closer cooperation, especially with regard to the teacher training and junior extension work. Attention has been called to the fact that in a number of States a teacher-training specialist at the college is connected in some way with the State department, generally as State supervisor

of agricultural education. This arrangement tends toward closer cooperation, but does not provide for appropriate relationship with the extension activities as conducted by the college of agriculture. Other special arrangements aiming to insure better working relations are described in the following statements:

Colorado.—The governing board of the State agricultural college is also the State board for vocational education. Under these conditions "it has proven an easy matter for the State director of vocational education to agree upon a basis of cooperation between the Smith-Hughes work and the boys' and girls' club work." The agricultural instructor in each of the Smith-Hughes high schools acts as the leader of boys' and girls' club work for his district or county, as the case may be. Sometimes he is provided with an assistant.

Georgia.—The office of the State supervisor of agriculture is in the same building with the department of agricultural education of the college, which enables all members of the department to keep in close touch with the activities of both branches.

Massachusetts.—As indicated under another head, cooperative relationships have been established in the State of Massachusetts by the appointment by the State board of an agent for teacher training in service, whose headquarters are in the department of agricultural education at the Massachusetts Agricultural College. The department of agricultural education has no direct relation to the boys' and girls' club work at the present time.

Minnesota.—The State leader of boys' and girls' club work is ostensibly a member of the faculty of the division of agricultural education at the university, but since his salary and his appointment come from other sources, the relation is not vital nor satisfactory.

Nebraska.—The boys' and girls' club work is entirely in the hands of the agricultural extension service, and the superintendent of this work has been named as supervisor of agricultural education in Smith-Hughes schools.

New York.—The State educational department and the department of rural education at the State college of agriculture have entered into an agreement whereby the two departments act jointly in the supervision of teachers of agriculture.

The active supervision and administration of junior extension work in New York State has been placed in the rural education department.

North Carolina.—In North Carolina the head of the teacher-training department of the college also serves as State agent for boys' club work, as State director of vocational education, and as State supervisor of agricultural education.

Ohio.—Due to the fact that the dean of the college of agriculture is the president of the State board of education which has in charge the promoting of vocational education, that the State superintendent of public instruction is the secretary ex officio of that board, and that the professor of agricultural education is the State supervisor of vocational agriculture, it is very apparent that no other than the most cordial relations could exist.

Oklahoma.—The department of agricultural education, as well as the department of boys' and girls' club work, are under the direction of the extension service of the college of agriculture; hence the relationship between these two lines of work is the very closest.

Oregon.—The Oregon State Agricultural College has made a formal transfer to the State board for vocational education of two-fifths of the time of the professor of agricultural education during which time he serves as supervisor

of agricultural education under the direction of the executive officer of that board. As the executive officer of that board is the State superintendent of public instruction, relations with the State department of education are friendly and satisfactory. In as much as the field covered by the boys' and girls' club work is entirely different in this State, there has yet been no need for definite action. As club work is considered prevocational and its success essential to the vocational work of the secondary school, the men working in agricultural education do all they can to help the work along. Club workers on the other hand do their part in stimulating interest in the vocational work of the secondary school. Our relations have been entirely satisfactory so far.

Vermont.—We have close cooperation between the State department of education and the department of agricultural education at the university. The project work under the Smith-Hughes Act is taken care of by the director of agricultural education in the State department, while the supervision of classes and instruction is left to the department of agricultural education at the university. So far no complications have arisen and the scheme seems to be working very well.

Virginia.—The cooperative relations between the agricultural extension service of the college and the officers responsible for vocational agriculture are provided for by written agreement. Some of the intricacies of such relations are well shown by the following extract from the memorandum of agreement:

"No persons enrolled in a Smith-Hughes class may, while a member of said class, be enrolled in a Smith-Lever club. If such person be already a member of a Smith-Lever club, he may complete his project after becoming a member of a Smith-Hughes class, but he shall not start a new Smith-Lever project.

"There should be a full and mutual cooperation and understanding at all times between the vocational teacher and the county agent. The work or plans of one should not interfere with or discount any plans of the other in their respective fields of work.

"There should be friendly discussions on the agricultural and home economics problems of the county at least once a month.

"The county agent is the recognized head of extension work in the county, while the vocational teacher is the recognized head of all vocational work in the county.

"The county agent should be recognized as having priority as to all instruction to adult farmers and their families on their farms who are not enrolled in vocational classes under the supervision of a vocational teacher.

"The county agent and the vocational teacher may avoid many misunderstandings and secure a greater degree of cooperation by becoming thoroughly familiar with the nature, aims, and methods of operation of the work of each other.

"Where differences of opinion arise regarding the best methods of procedure, the vocational teacher and county agent should present the situation to the director of vocational education and director of extension work, respectively, for final decision. This is in the interest of continued friendly relations which must be maintained for the greatest efficiency of both lines of work and the agricultural development of the community."

The responsibility for the present confusion in administrative relationships can not be charged to the State educational officers or institutions. The condition rather is a natural result of the independent development of the two main branches of our educational

system. The necessity for closer relationship has manifested itself more acutely in recent years because of the growing complexity of the State systems of education. The complexity of the system has been intensified by Federal legislation in support of various educational activities through two or more agencies. It is manifestly evident that some coordinating agency between the higher institutions and the State department of education is needed. Centralized control, of course, is the logical solution in most States, but such adjustments generally necessitate constitutional amendments, and these usually provoke prolonged controversies. With a view to bringing about immediate relief, it has been urged that provision be made for the appointment within each State of a coordinating agency representing the various educational agencies concerned with instruction in agriculture.

The above-described methods represent the most conspicuous devices for bringing about better administrative relationships. Some of these are quite effective, but from the standpoint of maximum efficiency it is doubtful if any of these plans are adequate. They represent real progress, however, and offer hope that the near future may have in store such a working plan as will provide not only for an efficient teacher-training program but a course of study commencing with the first attempts at vocational agriculture and continuing through both high school and college.

AN EMERGENCY COURSE FOR THE PREPARATION OF TEACHERS OF VOCATIONAL AGRICULTURE.

By W. F. Lusk,

New York State College of Agriculture at Cornell University.

A short course for the preparation of additional teachers of vocational agriculture was made necessary for New York State during the summer of 1918 because of the large number of agricultural teachers who had enlisted or had been drafted into service and because a considerable number had been taken from their teaching positions into other work offering greater remuneration. The situation was a very serious one in New York State, as in most other States. The work was offered at the New York State College of Agriculture at the request of the State Department of Education of New York, and was supported by State and Smith-Hughes funds.

The State department of education assumed the responsibility of providing students. It was their office to select the men who should be admitted to this work. As a matter of fact, these men were finally selected by conference between representatives of the State department and the department of rural education of the State college.

To be eligible for admission to the course it was agreed that candidates should have ample farm experience, amounting practically to being reared upon a farm. They were expected to show several years of successful teaching experience; to have had two years of educational preparation beyond the high school; and to be exempt from draft, as the regulations then stood. A few men from outside New York State applied for admission and were accepted by the college, the expectation being that these men were preparing for positions in other States. Twenty students enrolled in this course, six of whom were graduates of arts colleges, three of agricultural colleges, four of normal schools, and two from agricultural schools. In general, men of extended experience in teaching predominated. Seven had had previous preparation in technical agriculture.

The course extended over nine weeks, which included attendance upon the annual conference of agricultural instructors held at the State college August 5–10. This week of work gave all the students contact with the men who were actually in the field; an understanding of what some of their problems were; and acquaintance with the State supervisors, who took part in the conference.

The program of studies was made up as follows:

Soils and fertilizers, 3 hours; dairy industry, 3 hours for 5 weeks; poultry husbandry, 3 hours; animal husbandry, 4 hours; fruit growing, 3 hours; farm crops, 4 hours; farm shop, ½ day; methods of teaching agriculture in the high school, 3 hours.

During the last two weeks of the course, 10 lessons were given in farm accounting and farm management. This program presented so heavy a schedule that it was virtually impossible for a student to carry successfully all work offered. Students were, therefore, relieved from one or more subjects on the basis of their special experience or training. Where they knew the subjects to be taught during the coming year, the student's program was adjusted accordingly.

The selection of subject matter in the course was based on the subject matter essential to the corresponding high-school courses. An effort was made to cover, so far as possible, the material found in the regular high-school course. Some attention was also given to the problems of teaching which were concerned with the particular subject matter studied. A survey was made of the sources of information in each course, to place the student in a position to continue his study of subject matter after he took up his teaching work. Considerable effort was made to impress upon the students the necessity of continued effort for self-improvement in the knowledge of technical agriculture.

Great care was taken in the selection of instructors to handle the various lines of subject matter. It was necessary to secure an instructor who had an appreciation of the problems to be met by the high-school teacher and who was willing and capable of organizing a course definitely to meet the needs of such a teacher rather than to give the typical college course.

Instructors in charge of the classes pronounced the group the best with which they had worked in their teaching experience with undergraduates. The students expressed themselves as well satisfied with what they accomplished during the summer, but at the same time developed very evident appreciation of their limited agricultural knowledge—a very desirable attitude for men who had been prepared in a nine weeks' course.

Three of the men who completed this course are serving as agricultural teacher and principal in the schools where, before last summer, they had been principal; one of them establishing the vocational agriculture work this year. Two of them have become principals and agricultural teachers in new positions, one of these establishing vocational agriculture for the first time. Seven of these men are serving as teachers in high-school departments of agriculture. Two have returned to academic teaching positions with their intentions probably fixed on future agricultural work. Two of the men at last

information were serving in the Army. Two of the men are not engaged in teaching work because of their own choice. Two returned to other States, and their subsequent history is not known.

A limited observation of the work of these taking the course who are engaged in agricultural teaching indicates two general weaknesses: One growing out of limited agricultural information, and the other a tendency to adhere to academic rather than the vocational standards of teaching. These men show ability in classroom management considerably above that of the average agricultural college graduate who goes out for his first year of teaching. Exceptional results are found in the case of one or two strong men who have become principals and teachers of agriculture and who have become principals and teachers of agriculture and who have a concept of rural community school. They are building on a much broader basis than the average agricultural college graduate. They possess the qualities of leadership that makes the principalship a desirable implement in their hands. In general, the product appears to be inferior to that of the regular college course except in the case of these strongest men of broad views.

For the men who are in the field from this emergency course and expect to continue as agricultural teachers another year, a six weeks' course will be required during the coming summer. This six weeks of work will be directed especially toward preparation in subject matter which was omitted in their previous training and which bears upon their last year's work. It will probably include an intensive course in farm management and farm machinery, as these subjects were practically omitted from last summer's course. The State supervisor for vocational agriculture will have charge of these men in a special methods course which will be worked out on the basis of observation of the work done by them during the past year.

We regard this work as having been purely emergency work and shall not expect to depend upon this type of preparation in the future.

EMERGENCY COURSE FOR TRAINING AGRICULTURAL TEACHERS IN SOUTH CAROLINA.

By Verd Peterson, Clemson College.

Soon after this country entered the war we in South Carolina realized that little teaching of agriculture could be done during the war unless we made use of some emergency scheme for getting teachers.

In the fall of 1917 I asked the State superintendent of education, the director of agricultural extension work, and the head of the department of education at the university, each, to submit to me a list of 12 or 15 men who were successful teachers in the high schools of the State and might become teachers of agriculture, if they had a little more training.

On my trips over the State during that school session I visited the men whose names I had thus obtained, observed their work, and discussed with them the teaching of agriculture, often in a casual way, the men not knowing that they were being considered for the work.

Early in the spring of 1918 I picked about 15 men who had agreed to attend a summer school at the State Agricultural College and to take up the teaching of agriculture. The men selected for this work had been reared on farms, were college graduates with several years' successful teaching experience, and had in most cases studied and taught some elementary agriculture. The question of teaching agriculture was taken up with the communities in which the men were located, and most of the men were to go back to the same community and teach agriculture. Not a single man who had not made good as a teacher was selected. Neither were men tried who took the attitude thet they were disgusted with the old-line teaching and would leave the work if they could not change. We had some applicants of this kind, but we were afraid to risk them.

All these men attended the summer school of six weeks and took the following courses: (1) Soils and fertilizers; (2) field crops; (3) materials and methods for teaching agriculture; (4) principles of agricultural education, which included the plans and principles involved in organizing the work in their schools.

So far as possible the methods and materials used in teaching these men technical agriculture were aimed to be about the same as

that which they would need to use in the high school. This was a rather difficult matter since the college faculty had not had much experience with the problem. I think the work would have been a little more effective if more detailed syllabi had been prepared and followed carefully.

The agricultural college graduates who had been teaching most of one season in the State took four weeks of this same work. I do not know to which class of men this was more beneficial.

All of the men, except one, who were selected for this work had attended the summer school, are teaching agriculture, and with reasonable success. Some of them are among the strongest teachers we have.

Soils and crops are taught in the first-year work in our State; hence these were the only courses in agriculture given these men.

Our plan for the coming year is to give the same men strong work in animal husbandry for at least a four weeks' summer school. We hope to make that work a little more helpful than what we gave them last year. By the time the men have followed this plan for four years, covering all four years of the work given in the high school, we feel that they will be fully prepared to teach agriculture.

With our work in itinerant teacher-training we are able to give much assistance. Most of the men are reading and studying hard enough to keep well ahead of their classes. These men have all had pedagogical training, farm experience, and several years' teaching experience. They are still short on technical training, but their knowledge of the school system and their prestige in their respective communities are going a long way to offset this weakness.

RELATION OF GENERAL SCIENCE TO AGRICULTURAL INSTRUCTION.

Report of Committee of the American Association for the Advancement of Agricultural Teaching at Baltimore, Md., January 1, 1919.

Your committee has prepared a brief report based upon a study of the work in general science in typical high schools. For this purpose several hundred such schools were selected from all parts of the United States. No effort was made to choose the largest or the best, the only consideration being that their work typified the most progressive thinking of the State. Members of the committee personally visited and inspected the work in several hundred schools. This was supplemented by a further study from catalogues, outlines of courses, and by the questionnaire method.

In a special study conducted by the chairman, complete data, which, in the opinion of the committee are fairly representative, were secured from 58 schools, and it is upon these data that the percentages found in this report are based. It is the confident opinion of your committee that the experience of representative institutions forms the best basis for judgment both as to the soundness of the present methods and the wisdom of our future policy.

AT WHAT PLACE IN THE CURRICULUM IS GENERAL SCIENCE INTRODUCED?

Ninety-three per cent of the schools studied offer general science in the ninth grade, and all but 7 per cent of this group confine the study to this grade. One-half of the remaining 7 per cent offer work in this subject in both the seventh and eighth grades and the other half in both the ninth and tenth grades. Thus it will be seen that this work is taught to four different grades, but is confined to the ninth grade in the large majority of schools.

1. It would then appear that general science has become pretty firmly established as a ninth-grade subject. The ninth grade as used here indicates the first year of the high school or the corresponding year of the junior high school.

HOW MUCH TIME IS DEVOTED TO GENERAL SCIENCE?

The amount of time devoted to this instruction varies as follows: Thirty-four per cent of the schools devote one semester to the subject; 58 per cent give one year to it; 7 per cent two years; and one school

spreads the work over three years. In 80 per cent of all the above institutions daily work is given throughout the entire period of instruction. In 35 per cent of these schools one or two hours per week of laboratory work is given. In 65 per cent of the schools no laboratory work is undertaken.

It is also to be noted that the schools extending the work over two or three years are the ones that do not give daily instruction in this branch.

2. Experience indicates a tendency toward daily recitations in general science throughout a period of one year.

ARE PUPILS REQUIRED TO STUDY GENERAL SCIENCE?

In exactly 50 per cent of the schools the work is required of all students, and in an additional 28 per cent it is required of all groups taking scientific courses. In but 22 per cent of the schools is general science a wholly "free elective," and judging from the size of the enrollment in the general science classes in the latter group of schools, it is a popular course and appears to be elected by the majority of students.

3. The inevitable conclusion to be drawn from these facts is that general science is a subject pursued by the largest majority of the student body in those schools where the instruction is offered.

HAS GENERAL SCIENCE COME TO STAY?

Our method of study necessarily forced us to secure data from those schools which had been giving the work for some time. Seventy per cent of the institutions furnishing information had offered the work for more than three years; 40 per cent had offered the work from 5 to 10 years; and in two of the schools instruction had been given for more than 10 years. This condition, taken in conjunction with the fact that the subject was required in the majority of institutions and "popular" in the remaining minority, leads to the conclusion that:

4. General science has come to stay.

WHAT IS THE CHARACTER OF THE SUBJECT MATTER?

There is still a tendency to teach general science as fragments of differentiated sciences. To get at this point, the question "What is the distribution of time in the general science course between biology, chemistry, physics, and geography?" was asked.

To this question over 80 per cent of the schools indicate a definite distribution of time in their replies. The remaining number, however, say either that it is impossible to give an estimate of the propor-

tion of time given to each branch or frankly state that no such division is made. It is only fair to conclude that the division given by some of those who make a distribution was probably due to their extreme conscientiousness in replying to the question, but their effort to do so indicates that they believe such a division is possible and proper to make, which your committee believes inadvisable.

If, as Caldwell and Eikenberry assume, pupils should be so instructed that they do not feel that they have had any of the differentiated sciences, "but become much interested in the later study of the sciences" is the proper ideal, then

5. The character of the subject matter now presented in these courses is their chief weakness; this your committee believes to be true.

WHO TEACHES GENERAL SCIENCE?

In 15 per cent of the schools the teaching is done by graduates of agricultural colleges; in 65 per cent by teachers who have specialized in science in their college course, and in the remainder by persons of no special scientific preparation. In the case of the latter class, it is apparent that the teacher has made or is presumed to have made special preparation for the teaching of these classes. In but one case in the entire group has special preparation been made for the teaching of general science as a subject important in itself.

6. These facts indicate to your committee that inadequate preparation of the teacher is a real source of weakness in general science instruction.

If general science has come to stay in the ninth grade, and is to cover a period of at least one year as a subject of general study, then we must prepare teachers who are able to teach it to this particular group of pupils for this specific length of time or longer—

(*a*) As a means of understanding environment.
(*b*) As a tool to be used in other school work.
(*c*) And as a stimulus to further study of differentiated sciences.

ARE AGRICULTURAL COLLEGES CONCERNED IN THE PREPARATION OF THIS CLASS OF TEACHERS?

The interest of the student of agriculture in his environment is certainly no less than the interest of any other group of students. In no other group of students is the habit of environmental study more essential.

The student of agriculture *must* have some general science information as a tool to be used in his regular work. He *must* be a consistent student of his environment, and to thoroughly understand the

problems of agriculture he *must* be led to further intensive study of "differentiated" science. Thus from every point of view general science is as closely related to agricultural instruction as it is to any vocation or group of studies.

7. Hence your teachers of agriculture should be thoroughly familiar with the plans and purposes of general science teaching, and the converse is also true.

SHOULD AGRICULTURAL COLLEGES PREPARE TEACHERS OF GENERAL SCIENCE?

That specific preparation for teachers of this branch is necessary may be admitted as axiomatic. The proper place for giving such preparation, under present conditions is largely a matter of expediency.

The possible institutions equipped for this work are normal schools, teachers' colleges or teachers' training departments in universities, and colleges of agriculture. Of all these institutions the colleges of agriculture are the best equipped for this work. The normal schools lack both in intensity and breadth of scientific work and in material equipment. Teachers' colleges and training departments train for instruction in differentiated sciences with the weight of emphasis on professional work. University courses are frequently narrow and intensive and no adequate machinery exists in most of these institutions for correlation of the various sciences. On the other hand, the agricultural colleges base their courses upon a broad scientific training in all the differentiated sciences. Their students are already equipped with this necessary foundation for general science teaching, and the application of the differentiated sciences to their agricultural work has led them to discover their mutual interdependence. Of all institutions, therefore, the agricultural colleges should be the best prepared to add courses of training for general science teachers to their regular work and are the most likely under present conditions to succeed with it.

In many of the smaller schools no separate teacher of general science can be employed. If the teacher of agriculture must teach something else, this is the subject for which he is best prepared.

In the larger institutions, under the present plan, separate teachers are provided for each of the differentiated sciences. In either event the teacher of general science who has received his training in an agricultural college has the best chance for success.

K. L. HATCH, *Chairman.*
W. G. HUMMEL.
F. E. HEALD.

RESOLUTIONS PERTAINING TO THE TRAINING OF TEACHERS.

First. In view of the scarcity of agricultural teachers and the consequent necessity for the employment of many teachers with deficient qualifications and because of its value as a permanent feature of the program for agricultural education, we heartily approve of the practice of training teachers while in service.

Second. That we strongly emphasize the need in the teacher training institutions for adequate facilities for practice teaching in agriculture and that, in view of the demonstrated efficiency of the method, we commend as one of the suitable methods, the plan which provides for the actual employment of prospective teachers as apprentices as a part of their collegiate training.

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