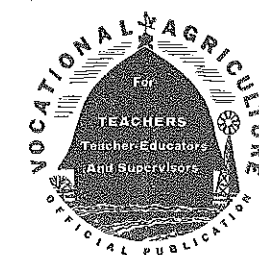


*I can truthfully say, America is still a land  
 of opportunity for its youth, and I know that  
 the youth will take advantage of it.*

*—Father Edward J. Flanagan*



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# Editorial Comment

## Progressive Agricultural Education

AGRICULTURAL education, designed for proficiency in farming on the part of present and prospective farmers, is coming to have broader implications and deeper meanings than were formerly held for it. In the beginning, workers in the field of vocational education in agriculture were concerned primarily with the development of skills and abilities needed in the more or less unrelated aspects of the productive phases of farming. Major emphasis thruout the country was placed upon the needs of in-school adolescents for these skills and abilities. As a consequence, most of the attention of leaders and teachers was directed to the development of programs of systematic instruction organized and administered in the interest of all-day students.

If it ever were true that such a conception of opportunities and responsibilities sufficed for the welfare of individuals about to become or already engaged in farming, it becomes increasingly apparent that such is not the case today. Leaders and teachers in the field of vocational agricultural education are finding it necessary more and more to include in their thinking responsibility for the satisfactory placement of out-of-school young men in farming and for the progressive establishment of adult farmers in the occupation, doing this, however, without any tendency to lessen the effectiveness of the work being done with the all-day group. As such a development takes place, it becomes necessary to develop new programs of agricultural education, co-ordinated and correlated in terms of the progressively developing needs of adolescent boys, out-of-school young men, and adult farmers.

VOCATIONAL education in agriculture of the future must take cognizance of changing economic, social, and population conditions if it is to continue to be of the greatest possible service to farm people and to farming. Such phenomena as the passing of the physical frontier, the development of technological processes, the slowing down of the birth rate and the consequent maturity of the population, and the growing interdependence of occupations, groups, and commercial interests all tend to emphasize the fact that new bases for judgments and decisions need to be evolved.

Leaders in vocational education in agriculture are demonstrating their awareness of these problems and these issues. Programs are being developed in the states in conformity with these demands. Already there is fair agreement in evidence that such developments as are taking place or such as are being planned will center in the following:

1. The dominating problems facing all individuals, young and old, who would farm successfully and satisfyingly are: (a) finding an opportunity to engage in the occupation and (b) becoming progressively established in it. In the last analysis, the success of all instruction in vocational agriculture is to be measured by the degree to which it makes a contribution to the solution of these two problems.

2. It becomes increasingly clear that the extent of the opportunity to render the service needed for solving the problems of placement and progressive establishment in farming rests largely in the degree to which vocational education in agriculture becomes a continuing process. Such instruction should be organized for and offered on a year-around basis.

3. The responsibility for knowing what are the facts with regard to placement in farming opportunities, both quantitatively and qualitatively, in each community being served, has come to be recognized and accepted by workers in vocational education in agriculture.

4. Next in importance to knowing placement in farming opportunities is knowing the placement problems and needs of individual pupils, since vocational agricultural education programs must be built around individual pupil characteristics and conditions. In the development of such programs full recognition needs to be taken of the fact that in most instances individuals have tended and will continue to tend to "grow into farming." Therefore, individual supervised farming programs should be central in the development of programs designed primarily to help students solve their problem of placement in farming.

5. Programs of instruction should not only deal with the problems having economic significance for placement and progressive establishment in farming, but should also become increasingly concerned with problems having social, civic, and recreational significance for satisfying farm living.

6. Vocational education in agriculture for out-of-school young men and adult farmers must come to be just as well organized, just as well planned, and just as well taught as any instruction now being offered all-day students.—R. W. Gregory, Washington, D. C.

## Determining Objectives in Vocational Agriculture

NO TEACHER of vocational agriculture would think of taking the members of an F. F. A. chapter on an extensive automobile tour without first determining where he will go, the route to take in getting there, and what to see and do on the way. For months before such a trip is begun, the teacher and his students study road maps, determine where and why to make stops, figure expenses to the last penny, and, in general, do everything possible to make the trip a success. After the trip is over the class will spend weeks in discussing what it saw, heard, and did, drawing lessons that will result in better farming practices in the local community, planning how to make future trips even more successful. Yet, how many of us begin an infinitely more important job, the teaching of a course in vocational agriculture of two, three, or four years, with its accompanying supervised farming program, without first determining the objectives to be achieved, and, when the course is finished, evaluating the accomplishments with a view to improving our future work.

The objectives set up for a department of vocational agriculture in a secondary school will be determined largely by the teacher's philosophy of education, what he considers to be the basic values in such work. Recent graduates of agricultural teacher-training departments have had instruction in the philosophy of agricultural education, and teachers who have been on the job for many years have had an opportunity to formulate their own philosophy. Consideration should also be given to the type of farming found in the community; to the employment opportunities open to graduates of the department; to the recreational, cultural, and social needs of the boys; and to the abilities of the pupils served. Conditions vary so widely from community to community that each department should be free, within certain limitations, to determine its own specific objectives.

No uniform method for listing objectives has ever been determined. An acceptable method is for the teacher, or teachers, to decide upon the changes that can and should be brought about in the farming practices carried on by the students, in their attitude toward agriculture and life in general, and desirable changes that can and should be brought about in the community as a whole as a result of the teaching of vocational agriculture in the school. It is desirable that the objectives be accompanied by a statement showing how each will be achieved.

Evaluating the accomplishments of the department is much more difficult than preparing a statement of objectives. Teachers in the field of general education have many excellent standardized tests available for measuring the progress of their students, but for obvious reasons few standardized tests have ever been developed for vocational agriculture. The teacher should be interested in knowing to what extent his pupils use intelligence in selecting, producing, harvesting, and marketing farm crops; in selecting, caring for, repairing, and using farm machines, farm tools and appliances; the extent to which they show an understanding and appreciation of farming and of farm life. In particular, the teacher should try to determine the beneficial changes that have been brought about in the community because vocational agriculture has been taught in his school. To the teacher who critically examines the results achieved in his department in light of the objectives set up, more efficiency and greater satisfaction in his work are assured.—F. E. Armstrong, Hawaii.



## The "Complete" Program

SHERMAN DICKINSON, Teacher Education,  
Columbia, Missouri

Sherman Dickinson

FOR a number of years I have been thinking and occasionally saying something about the relative emphasis which should be given to various phases of our educational program. Following the excellent discussions on some of our problems presented at the 1940 North Central Regional Conference and several private discussions with others present at that meeting, I am moved to put my thoughts on paper. If the ideas suggested are faulty, they should be shown to be so, for apparently others than myself are thinking along the same lines. If the ideas happen to be valid, then all of us should be giving them consideration.

The term "complete" is now commonly used to designate the program in a local department in which the teacher carries on systematic instruction in agriculture thru all-day, part-time, and evening-school classes. The student personnel in this case includes boys regularly enrolled in high school, farm youth out of school, and adults already established in farming. In some states, as a matter of fact, the program is not "complete" unless the upper grades of the rural elementary schools are provided with systematic instruction. Complete is a good term for such a program, but possibly "overflowing" is a better one.

For twenty-five years I have been watching—yes, and at times participating in—the "piling on" which has taken place in our concept of the work of the teacher of agriculture. It is true that in the early days of our program when we were young and inexperienced, we sometimes lacked vision concerning possibilities for service in our chosen activities. To some extent we included some "busy work" in the duties of our teachers, so that they would at least seem to be doing enough to justify their salaries. We even surreptitiously urged some of our teachers to broaden out in their services, both to individuals and groups not normally included in their sphere of influence. Gradually, however, as thought, research, and experience played their part, we began to see what appeared to be the true boundary of our particular responsibility and then to analyze more completely the various possibilities lying therein.

## Expanding All-Day Programs

Starting out in most sections of the country with an emphasis upon the "all-

day" or high-school phase of our program more intensively than with the others, there has been a tendency to expand and enlarge the scope and time involved. As we became more and more aware of the value of supervised practice, we were inclined to increase our class time, number of units, and number of years in order to get the maximum benefits.

We encourage boys to get started on project work even while still in the grades, and to keep it growing and expanding under the teacher's direction for several years after finishing high school. In 1928 we geared the F. F. A. into the high-school program in order still more adequately to prepare the rural boy for life and work on the farm. All of this meant more responsibility.

## Increased Emphasis on Adult Education

Then Thorndike's study of adult learning began to take effect, and we were told that "old dogs" really could learn "new tricks." (We'd always had a "kindava" sneaking feeling that they could.) With scientific proof back of us, we increased our emphasis upon evening-school activities. We urged our teachers to extend their services to the adult farmers of their community in the form of regularly organized series of meetings or "courses." In some cases this urging was supported solely on the basis of direct values to the farmers and indirect benefits to the teachers; in some cases the spread of evening classes was further stimulated by salary bonuses. Supervised practice was, of course, a stipulated adjunct of the adult courses. The evening-school "curve," representing both schools and enrollees, showed a rapid rise. This meant still more responsibility for the teacher.

## The "Complete" Program for Education of Youth

Now the cry of "unidentified farm youth" was heard in the land. What should be done for the rural boy out of school between the ages of 16 and 26? Maybe he had had vocational agriculture in high school and maybe he hadn't. In any case, here was a potential farmer without a farm, with still insufficient training, with a need for guidance and help toward placement. What social agency should help him? Should it be the CCC, the NYA, agricultural extension, or should a special service be established for this purpose? We in vocational education had already recognized the "gap" in our farmer-training program and had made some progress in the organization of part-time work, called variously short courses, folk schools, young men's farming clubs, and so on.

In line with more advanced educational thinking, i. e., that schools as an agency of society should extend their influence beyond the traditional period of formal training, it seemed only natural to expect more and more activity by vocational agriculture teachers in part-time work. And the Federal reports show that the courses and the students increased in number. As with the other phases of the program, supervised practice is an integral part of the instruction. In addition, the teacher is expected to take some responsibility for guiding the young man's social adjustment and, more recently, for his ultimate establishment in farming.

## One Teacher or More?

Here, then, are the big three in a complete program of vocational agriculture—each one of them, under certain circumstances, a mighty heavy if not complete program in itself. Assuming that all three are desirable and necessary in most rural communities and that it is wisest to give some time, thought, and energy to each, even at the expense of the others, it is quite apparent that some definite understandings must be reached and some adjustments made. Considerable careful study should be undertaken first of all to determine the relative effectiveness of the training in the three areas; and altho this would involve some very difficult problems, it could be done. Then ways and means would have to be devised for making application to each particular situation of the principles discovered, and the local program modified accordingly.

For example, if it seemed evident that one teacher of vocational agriculture could not adequately meet the training needs of a complete program in a community, then an additional teacher should be employed. If this is impossible or inadvisable, and it appears wise to reduce the relative emphasis upon the all-day program, several options are available: (1) The number of students may be reduced by a more selective enrollment, eliminating all town boys and others unable to carry satisfactory supervised practice or who for other reasons would be unlikely to profit greatly from the training. (2) The number of units of credit offered might be lessened from four to three or to two, and time still further conserved by a course-alternation scheme. (3) The number of minutes per week required for a unit of credit in vocational agriculture might be reduced below the traditional 450, to 300 minutes, or the hour-a-day basis. Any of these three options, or any combination thereof, would release teacher time and energy for greater attention to part-time and evening-school responsibilities.

Constantly increasing interest and enrollment in all three areas of vocational agriculture, despite population trends, make it all the more necessary that careful study be given to the question raised. After all, there is a limit to what may be expected of even the best teacher of vocational agriculture.

A. W. NOLAN, Professor of Agricultural Education,  
University of Illinois

A. W. Nolan

## FARM Youth of America:

You have many friends who are interested in you. Friends are among your best possessions. The interest of your best friends is not like that of the sportsman who grooms his horse for the race, or the farmer who fattens his swine for the slaughter. These friends have at heart your welfare, your success, and your happiness.

Who are friends of the farm youth of America? I cannot list them all by name, but I can classify them, and hope that you will recognize and appreciate them.

There are the leaders in our National Government from the days of Abraham Lincoln, who signed the Land Grant Act of 1862, bringing great good to farmers of all generations, thru the period when Woodrow Wilson signed the National Vocational Education Act, widely extending agricultural education, down to the present time, when President Roosevelt has expressed his faith in the farm youth of America.

## Friends of Rural Youth Always Active

There are the leaders in the state governments who have made liberal grants for the support of your education in agriculture. There are also the U. S. Department of Agriculture and the U. S. Office of Education, giving their best thoughts and service to the work you are doing in agriculture.

Then there are the state boards and supervisors, men of intelligence and sincere purpose, who make possible the training for your chosen career. There are, in addition, the colleges of agriculture, with their extension specialists, and local leaders, ready to help both the 4-H Club boys and girls and the Future Farmers of America.

There is the high school in your community, supported by its citizens and guided by its teachers—in the interest of your education and future life work. There is your teacher of vocational agriculture or club leader, a big brother who cares for you and is willing to go the limit to help in preparing you to become a good farmer.

And finally, there are your parents, your father and mother, who are standing by you and will make many a sacrifice in order that you may have an education and a good life.

These are days of distressing unemployment, but you are not unemployed. You have two good jobs—the best you could possibly have. They are: *Working and living on a farm, and going to high school.*

You may sometimes chafe under the monotony of farm chores and the long, lonely hours of field work. You may think you waste time, earn no money, and get nowhere, working on the farm.

You may sometimes feel that you are the "forgotten boy," but if you will work with "Dad," willingly, cheerfully, honestly, conscientiously, and efficiently, at every task before you, you are making an investment that will pay well in all your after years. Here you develop initiative, resourcefulness, thrift, industry, and willingness and ability to accept responsibility. All successful men, in any walk of life, who have been brought up on a farm, say that they owe much of their success to boyhood farm experiences.

Farm youth of America, you are especially favored in your work by having teachers of vocational agriculture, organization leaders, and farm advisers, as well as co-operative fathers, guiding, helping, and encouraging you in farm projects, and leading you into that better day which is just ahead for agriculture and rural life.

## No Job More Profitable Than Going to School

Your other job is going to high school. You could travel the world over in search of a better job at your age, and could not find it—for there is none. Going to high school, like working on the farm, may seem at times a boresome task, and altogether unprofitable. But it should be a happy experience.

It has been proved again and again that from the standpoint of financial profit every day in high school is fully repaid by larger earning abilities of the graduates in after years. In fact, the doors to a happy and successful life in all major vocations are closed to young men and women who do not have a high-school education or at least its equivalent.

You have shown good judgment in choosing this job of going to high school, especially where you can study agriculture, along with the many other good things to learn in the high school. Altho you may find it best, later in your life, to change your plans for a career, your study and practice of agriculture will in no way be wasted time or "lost motion." It will be as good a preparation for whatever you decide to do in life as any other experience you might have in the "teen age."

To decide to be a farmer is to choose wisely. Suppose you decide to go into some commercial business. What assurance have you that a depression or a new development may not throw you out of business, close your store or bank, and leave you at middle age, with dependents, among the unemployed?

Suppose you choose an industrial\* or mechanical career. What assurance have you that some new invention or shift of business may not junk your shop or factory, and put you in the same plight as the businessman mentioned before?

Suppose you decide upon a professional life of public service. What assurance have you that taxes can or will be paid or that funds for your fees or salaries can be provided when depressions come?

The gainers of unemployment and economic insecurity may stalk your way in all these good vocations you may choose.

Can we say this of farming? If the farmer owns his land, and it is not too heavily or unwisely mortgaged, and if he practices good farm management, and is industrious, he need never fear the fate of his brothers who have chosen careers in other vocations. He will always have the creature comforts of life—a home in which to live, plenty of food, and a job secure in its permanence.

I would not be so foolish as to advise all boys to choose agriculture as a career. The city needs the brawn and brain of farm youths as well as the country, and many farm boys will succeed happily in city vocations and life. This I must say, however: the farm boy is fortunate indeed if he has an opportunity to own a farm and is willing to choose farming as a career. To all farm boys I would say, "Think twice before you turn the investment of your money or life into other fields than agriculture."

The poet has expressed the thought of our national leaders:

"Who are the men of tomorrow?  
Seek ye the boys of today,  
Follow the plough and the harrow,  
Look where they rake the hay.

"Walk with cows from the pasture,  
Seek mid the tasseled corn,  
Try where you hear the thresher  
Humming in the early morn.

"Who are the men of tomorrow?  
Look at your sturdy arm.  
A Nation's hope for the future  
Lies in the boy on the farm."

—Anonymous.

\*This article was originally prepared for and distributed by the National Exchange Club.

## Leadership Versus Adversity

Joseph M. Lent, Advisor,  
Lambertville, New Jersey

I AM informed that William Sharpe of Lambertville, New Jersey, is the only blind boy in America to preside over a chapter of Future Farmers of America. I wish I could give in detail some of the outstanding things that Bill has done with the boys in our chapter. He was elected President of our Lamffa Chapter last fall and is doing an unusual piece of work. He is one of the most brilliant students I have, is very ambitious, and has great interest in agriculture with a first choice for poultry. Bill started work in vocational agriculture in his junior year with a rabbit project. This year he has shifted his emphasis to poultry.

This young man had the misfortune of losing his eyesight thru an accident six years ago. He has had one misfortune after another and has been transferred from one school to another. He has acquired unusual skill in operating a typewriter. His unusual leadership in spite of a handicap is a great inspiration to the boys who work with him. Our hats are off to young men of such courage and leadership. Agriculture needs more young men possessed with such enthusiasm and optimism.

# Supervised Practice

H. H. GIBSON

## Let's Look at the Records

E. R. HOSKINS, Teacher Education,  
Ithaca, New York



E. R. Hoskins

SOME of my readers will recognize that the title for this article was selected from a characteristic statement of Alfred E. Smith, the "Happy Warrior" of the 1928 presidential campaign. The records of which I write were about one-half completed when that memorable campaign took place. I wish to present "A Summary of Records of Supervised Practice Completed at Trumansburg High School" from 1917 to 1935, as compiled by Leon F. Packer, a supervising teacher in the department of vocational agriculture, Trumansburg, N. Y. This school has been used as a student-teaching center by the department of rural education at Cornell University since the passage of Vocational Education Act of 1917. The author had the experience of serving as a supervising teacher in this center from 1923 to 1928, or during the middle period shown in the general summary of data.

Many of us are aware of the handicaps and limitations of student-teaching centers and fully realize that better situations for the development of superior programs in vocational education in agriculture exist in many areas quite remote from centers for teacher education. I believe that critic teachers, as a group, are always anxious to maintain rather high standards of work in relation to their particular situations. Since records for supervised practice may be maintained rather consistently over a period of years and evaluated in relation

to changing conditions, the results in this field are more easily measured and better suited for comparisons than the results in many other phases of work in student-teaching centers. During the summer of 1936, Mr. Packer, an expert with a slide rule, decided to study his own business of teaching vocational agriculture by tabulating and analyzing all available results of supervised practice. Complete records were kept by all former students (in bound ledgers) from which permanent records had been compiled and filed in the school.

During the 18-year period under study, 396 boys had completed 756 projects selected, for the most part, from the major farm enterprises of the area. The results of the completed programs were tabulated to show:

1. General summary of data
2. Numerical distribution of projects completed
3. Percentage distribution of projects completed
4. Productive man units in projects completed
5. Percentage distribution of man-work units (by enterprises)
6. Labor income for projects completed
7. Percentage distribution of labor income (by enterprises)
8. Labor income per project
9. Labor income per productive man-work unit
10. Rank of selected project enterprises in relation to four major factors

Space does not permit showing all the tables, but the results of the records could not be presented adequately without showing at least two.

The reader can observe rather easily that Table 1 shows a grouping of summaries into three six-year periods, repre-

sented the early formative years; the central or rather prosperous period, including the "late twenties"; and lastly a period in the "early thirties," or one of our depression periods. Thruout the entire period standards for supervised practice were changing, as influenced by many factors, a few of which are explained:

1. "Changing times" or economic conditions, as influenced by the general price level, the farm price level, and index numbers for the marketable products of the several enterprises.

2. Changes in the courses of study, as determined by the results of local surveys, showing trends.

3. Changes in teachers, with their varying emphasis upon different enterprises and their varying standards for supervised practice.

4. Changes in standards for supervised practice, acceptable by the state office.

5. Changes in boys enrolled in classes and their corresponding home-farm situations.

6. Changes in marketing facilities and outlets for farm products.

7. Changes in the school plant and physical facilities for teaching.

8. Changes in the extra-curricular activities of the boys, including the organization of a chapter of Future Farmers of America, increasing the co-operative business undertakings of the group.

Many of these changes are shown by the gradual upgrading of supervised practice, over the period of years, as measured by several factors used in this study. Certain outstanding trends are evident from the figures presented in Table 1.

1. Average enrollments increased or doubled from the first to the third period. This increase was due, in part, to a general increase in the school enrollment following a centralization of several districts.

2. Average number of projects per boy increased steadily from 1.38 to 2.15,

**Table 1—A Summary of Records of Supervised Practice Completed at Trumansburg Central School, 1917-1935**

Years	Average Number Projects Completed Per Year	Average Number Boys Completing Projects Per Year	Average Projects Per Boy	Average Productive Man-Work Units Per Year (Dept.)	Average Productive Man-Work Units Per Boy Per Year	Average Productive Man-Work Units Per Project	Average Labor Income Per Year (Dept.)	Average Labor Income Per Boy	Average Labor Income Per Project	Average Labor Income Per Productive Man-Work Unit
1917-18 to 1922-23	19	15	1.38	215	14.5	10.5	\$1071	\$ 72	\$52	\$4.98
1923-24 to 1928-29	41	21	1.97	362	17.3	8.8	3261	156	80	9.02
1929-30 to 1934-35	66	30	2.15	613	20.1	9.3	2381	78	36	3.88
18-Year Average	42	22	1.92	396	18.0	9.4	2237	101	53	5.65

indicating a broader scope for supervised practice programs from the first to the third periods.

3. Average productive man-work units\* per year for the department increased greatly, due to increased enrollments and the broader scope in supervised practice programs.

4. Average productive man-work units per boy per year increased steadily from 14.5 to 20.1 due to changes in emphasis and scope of programs.

5. Average productive man-work units per project dropped from the first period to the second period due to certain changes in course organization and to broader programs for supervised practice, selected and developed on the long-time basis.

6. Average labor income per year (for the department), per boy, and per project fluctuated consistently in relation to many economic and physical factors affecting returns from enterprises, selected for supervised practice.

7. Average labor income per productive man-work unit is a most significant factor. It shows a great deal and may be used to compare returns from supervised practice on a state-wide or national basis. I wish to compare the returns for these 18 years of supervised practice at Trumansburg with the returns from 191 cost account farms in New York State in the year of 1929, one of the "best years" in recent times. The average number of productive man-work units per man on these farms for the year was 403 and the average labor income was \$945, which indicates a labor income return of \$2.35 per productive man-work unit. The boys' labor return per productive man-work unit for the 18-year period was \$5.65. This indicates that the boys excelled the large group of farms by \$3.30 per productive man-work unit, tho it is recognized that the boys were working in the more intensive farm enterprises.

Tho it would be interesting to show the price levels for the many enterprises selected for supervised practice over the period of years, and to relate the relative profitability of enterprises to the general and the farm price levels, I shall leave this for an additional (or later) study to be shown after the records are completed for one or two more six-year periods. Significant relationships should appear at the end of three decades. It is sufficient now to point out certain evident values of the records as they were compiled. An interpretation of Table 1 has been given. Tho Tables 3 to 9 are not given in this article, there are certain teaching values within them in addition

to the summaries shown in Tables 1 and 2. The more detailed tables give the data for each of the 10 project groupings found in the Trumansburg area. One table, to illustrate, gives the numerical distribution of projects completed, and another expresses the same in percentages. These two tables show very clearly the trend toward diversified and long-time-project programs and away from the old system of short projects to fit new subjects in the course of study as they were formally changed from year to year.

Another table indicates size of projects in work units, while still another expresses these in percentages. From these tables can be traced trends toward increased or decreased size of certain project enterprises by years. One can trace also the yearly effect of favorable or unfavorable conditions on the size of projects undertaken, particularly in the case of crop projects.

The labor income for completed projects in each enterprise and the percent of income derived from each of the 10 important groupings of projects during each of the 18 years have been determined. The labor income per project and the labor income per work unit are also derived. From these four measures one can detect immediately the beginning of prosperous periods and depression years. It is evident that certain project enterprises are less subject to price disturbances than others.

Table 2 shows the relative ranking of project enterprises, developed from the more detailed tables described in this article. The usefulness of this table is evident. It represents a factor analysis of the relative importance of all the local farm enterprises for supervised practice over a given period of time.

### Values and Uses of the Study

In general, the values to be attached to complete records of past achievements are similar to the values derived from all record keeping. It is difficult to understand how teachers can hope to teach boys to keep accurate and complete records without first becoming good "record keepers" themselves. I wish to suggest specific values and uses that have been made of this study.

1. The study has furnished definite content, useful for the "economic approach" to the teaching of vocational agriculture, which is most essential in this period of rapid change and low farm incomes. The efficient operation of farm businesses and farm enterprises is not possible without records and figures to

indicate certain trends and from which to make intelligent estimates and budgets. The study of farm management over a period of years, starting with the guidance phases and advancing to the more difficult problems of reorganization, business management, and finance, is not possible without a good background of teaching content relative to the field. The study has also shown trends within single enterprises which, in turn, make up the farm businesses. Tho low returns might be due to factors of production during short or seasonal periods, continued or long periods of gains or losses are usually traceable to the more basic economic factors.

2. These records of accomplishment have been the most valuable as a source of guidance material. Many of the boys enrolled in vocational agriculture since the compiling of the records have been able to select their supervised farming programs more intelligently and with more assurance of success than ever before in the history of the department. The returns have also been useful in evaluating farming as an occupation.

3. In addition to providing average standards of accomplishments for former enrollees of the department, higher standards of accomplishments in supervised practice have been derived from the records of ten State Farmers who completed their work at Trumansburg during the period of this study. This group of ten averaged 2.7 projects per boy per year. Their labor incomes averaged \$213, which gave \$7.66 as the figure representing average labor income per productive man-work unit. By referring to Table 1, the reader may see that this group was greatly superior to the total group in its achievements in supervised practice.

4. One of the first uses to be made of the study was to supplement the farm survey materials, including records from some 200 farms in the area which had been collected previously and used as a basis for determining the organization of courses for the department. The results of boy achievements in farming were used very effectively in modifying the organization of courses to give the proper emphasis to several farm enterprises, as corrected by the figures indicating their relative importance for supervised practice.

5. The returns from the supervised farming programs of all-day students have been used as effective teaching materials for part-time groups. The study and selection of larger units of farm enterprises suitable for develop-

(Continued on page 18)

**Table 2—Rank of Selected Project Enterprises in Relation to Four Factors**

Eighteen-Year Average, 1917-18 to 1934-35

Factors	Poultry	Dairy	Sheep	Swine	Buckwheat	Beans	Potatoes	Cabbage	Corn	Misc.
Frequency . . . . .	1	4½	4½	7	10	2	3	9	6	8
Size (PMWU) . . . . .	1	3	7	10	9	2	4	6	5	8
Labor income per project . . . . .	1	2	10	6	9	3	8	5	4	7
Labor income per prod. man-work unit . . . . .	2	3	4	1	9	5	6	10	7	8
Score . . . . .	5	12½	25½	24	37	12	21	30	22	31
Rank in four factors . . . . .	1st	3rd	7th	6th	10th	2nd	4th	8th	5th	9th



**I Promotion\***

CARL G. HOWARD, Teacher Education,  
State College, New Mexico



C. G. Howard

ONE objective now commonly accepted for vocational education in agriculture with the all-day group is that of establishment in farming. This establishment may be only partial and may not be economically sound in its entirety, but each teacher of vocational agriculture who has a broad vision of the possibilities of his job makes a conscientious effort to lead as many boys as he can to set up long-time plans which will eventually lead toward this establishment.

While he is doing this the teacher who is awake to his own limitations and the physical possibilities of two, three, or four years of vocational education in agriculture in the high school realizes that there must be much beyond the all-day class if any measurable success in establishment in farming is to be brought about.

A foundation of single productive enterprise ownership and managerial responsibility with the utilization of improved practices and the acquiring of farm skills as supplemental necessities seems to be an integral part of any establishment objective. Building beyond this into additional productive enterprises with increased ownership and managerial responsibility seems to be a foregone conclusion if the teacher is to get many boys to grow into farming.

An analysis of teacher activity which is to lead to securing and maintaining good supervised farming programs leads to a breakdown into three general types of activity, namely: promotional, instructional, and supervisory. This article will deal primarily with the promotional activities in which the teacher of vocational agriculture should engage in order to secure and maintain good farming programs. Subsequent installments will enlarge upon the instructional and supervisory activities.

**Desirable Promotional Activities**

Examination of promotional activities in connection with supervised farming of all-day students in vocational agriculture could follow any one of several general plans. One of these resulted in the group thinking of a summer school class of experienced teachers of vocational agriculture being oriented as follows:

A. The teacher should inform school authorities, prospective and present students and their parents, school patrons, and the general public about supervised farming as a means of helping boys to become established in farming.

B. He should use several agencies. Among these should be included: (1) word of mouth (conference, visits, etc.); (2) newspapers (news stories, feature articles); (3) F. F. A. organizations

(State and American Farmer Degree requirements); (4) school authorities; (5) school paper; (6) Farm Bureau; (7) photographs; (8) film strips and movies; and (9) service clubs.

C. He may report the following events, among others: (1) supervised farming elections by the boys; (2) financial returns by individuals and by the class as a whole, tabulated by enterprise; (3) improved practices carried on; (4) results of improved practices; (5) sample plans.

This analysis was very stimulating to the teachers who made it up, but in itself it meant nothing unless followed up. However, the results which have been achieved by any teacher of vocational agriculture in supervised farming due, at least partially, to his promotional activities is a definitely meaningful proposition and worth repeating.

**What One Teacher Did**

In this connection, as in all reporting of actual accomplishments, it should be borne in mind constantly that there are few super-men in the field of vocational education in agriculture or any other field for that matter. In presenting the work of Mr. Cecil E. Hellbush of Las Cruces, New Mexico, to the reader, it is with the intention of offering evidence of his superior accomplishments in securing and maintaining good programs of supervised farming by promoting these activities, by teaching, or by instructing in the field and by providing on the job efficient supervision of boys' out-of-school activities.

Scrutiny of the promotional activities of the Las Cruces department of vocational agriculture, as these activities bear on good supervised farming, brings out several interesting facts.

The first of these is that any good promotional program depends on a correlation of Future Farmer activities, contest work, and supervised farming resulting in better Future Farmer programs, more contest success, and better supervised farming. The following is taken from Mr. Hellbush's annual report:

"The supervised farming programs of the Las Cruces boys are strong. Every boy has a definite program worked out for at least four years. In the work carried on by the boys, every farming enterprise of the Valley is represented. When a boy enters the department as a freshman, he is assisted in working out a definite program. Here is a typical example of such a program:

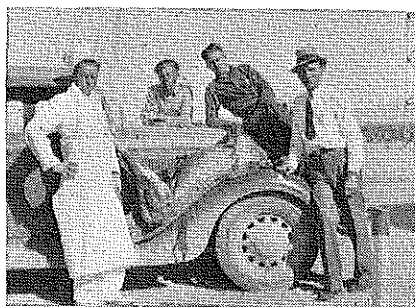
Carl Bamert—Freshman				
1	2	3	4	5
Feed one beef steer for show	Feed three beef calves for show	Feed three steer calves for show	Feed four steer calves for show	Feed five calves for show
	1 A. corn	1 A. corn	2 A. corn 1 sow 5 barrows	2 A. corn 1 sow 10 barrows 2 gilts 4 A. cotton
		1 gilt 1 A. cotton	2 A. cotton	

"This boy is likely to carry his program out as planned because his father animals in the sale held at the show. This money was greatly appreciated by

has helped him to work it out, with the guidance of the instructor.

"When the entire program is analyzed and divided into productive enterprises for this year it is as follows: Fat steers 15; purebred gilts 9; fat barrows 15; baby chicks 875; cotton 20 acres; sheep 20 head; corn 6 acres; alfalfa 3 acres; garden 3 acres. Fat hogs, fat sheep, and fat steers will be shown at the Southwestern Livestock Show in El Paso, and fat steers and fat barrows will be shown at the State Fair in Albuquerque and at the Eastern New Mexico State Fair in Roswell.

"Our boys won several individual prizes with their livestock at the El Paso show this year. The Las Cruces Chamber of Commerce donated \$25 toward the sale of our pigs and sheep at the show. In the state contests for students of vocational agriculture held at the state college, April 13-15, our department was represented in every event and made a record which won for us the sweepstakes plaque, presented by New Mexico State College for the highest combined score in four years.



Mr. Hellbush and his two skinners turning over the venison to the cook in town

"By virtue of winning the livestock judging contest, our team will represent New Mexico in the National contest, to be held in Kansas City in October in connection with the American Royal Livestock Show. The team, an alternate, and the instructor will travel to the National Contests and F. F. A. convention as the guests of the Santa Fe Railroad."

(It should be stated here that this team won the National livestock judging contest at Kansas City last October.) The previous year's report shows the following:

"The department gained added recognition in the Southwestern Livestock Show held February 19-22. This is the first year for the department in the sheep division of the show and the boys made a fine record. A livestock team ranked third in the livestock contest held at the show. The business men of Las Cruces appropriated \$85 for the support of the F. F. A. and 4-H club

the boys. The Dona Ana County Livestock Bureau also co-operated in the sale of the boys' calves and they are to be congratulated. Fifteen dollars was given by the Chamber of Commerce to help pay the expenses of the livestock team for a practice trip to the University of Arizona, at Tucson. This was indeed a big lift and helped a great deal."

**Use of Film Strips in Promotional Work**

Three other items not quoted by Mr. Hellbush in his reports are film strips, parent-and-son banquets, and 8th-grade picnics. The F. F. A. chapter purchased a film strip camera with which Mr. Hellbush has made a permanent record of the supervised farming, contest, Future Farmer, and class activities.

One of the main uses for strips made with this camera is found at the annual parent-and-son banquet at which a venison dinner is served each year. The venison is provided by one or more of the chapter members who kill the deer, skin and dress the carcass, and haul it to town for cooking. The accompanying picture shows Mr. Hellbush, the two skinners, and the cook ready to unload the deer at the cook stove. One of the items on the program of this parent-and-son banquet is the showing of a film strip of the activities of the boys whose

parents are able to see them on the screen for probably the first time.

The F. F. A. chapter bought a chapter membership in the local chamber of commerce and usually takes one of its meetings to show their activities.

Each spring pupils from two or more rural schools are entertained by the F. F. A. chapter at a picnic, field day, and judging contest in which the boys' activities in supervised farming, contests, and Future Farmer work are shown to prospective freshman students of vocational agriculture. Following registration, freshman boys are conducted on a project tour by Mr. Hellbush, who shows them the type of productive enterprises in which they should engage.

Promotion thru contests, fairs, and stock shows has been the route to better supervised farming programs in the Las Cruces department of vocational agriculture. Many teachers who have programs as good may have used other means. The conclusion that should follow is that the end justifies the means and that to secure good programs each teacher should use those devices which he feels best able to use, and judge the means employed by the results accomplished.

\*This is the first article in a series of three written by Professor Howard. The other two installments will deal with instructing on the job and supervision.

**How One Young Man Became Established in Farming**

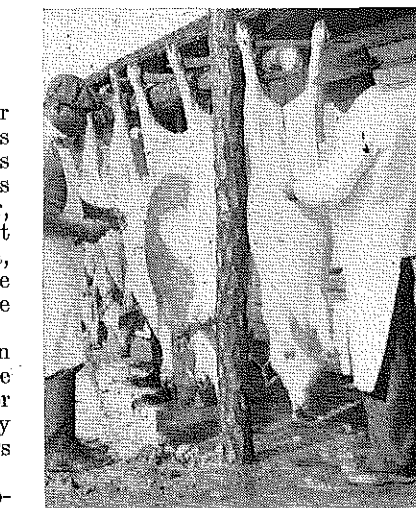
S. B. SIMMONS, Supervisor,  
Greensboro, North Carolina

THE farm still offers a fair chance for success to the young man who plans his program and puts forth his best efforts in carrying out his plans. At least that is the experience of Robert Lee McAllister, young Negro farmer and pioneer meat dealer of Rocky Point, North Carolina, who has built up the leading wholesale meat produce business among his race in the South.

McAllister did not find the road an easy one and the manner in which he made himself an articulate force for business progress in a small community resembles one of the leading characters in a Horatio Alger story.

McAllister is a former student of vocational agriculture at the Pender County Training School, Rocky Point. He was forced to leave school before completing one year of high-school work in 1923. At the age of fifteen, when most youngsters are in school, McAllister went to Wilmington to do public work as a means of gaining a livelihood for himself and his parents. But city life did not appeal to his nature so he returned to the Rocky Point section in 1925 where he began work as a farm laborer. From this position he advanced to sharecropper and thence to independent meat salesman.

Like all young men who feel they are started on the upward road in life, the move of marriage was next in line, and he began the purchase of a small farm. The depression of 1929 caught McAllister in its grip like many others and he was forced to start all over again. By 1936 he had, by dint of hard work, saved enough money to begin purchasing his



One of four employees helping Robert McAllister with butchering, pack house in background

present farm. The money for the purpose was raised by the selling of high-quality vegetables on the Wilmington and northern markets. As a result of his efficient methods of farming, a surplus of farm products remained each year. To convert these unsold products into cash, he began producing and preparing hogs for market.

From this modest beginning on 14 acres of farm land, he has bought and paid for two farms of which 55 acres are cultivated. He has further expanded his swine program from one brood sow to ten. From these he annually raises approximately 150 hogs for the market.

The McAllister farm is modern in every respect. The meat house is open for inspection at all times. Time-saving

equipment and scientific management are given major consideration. Much of the work is done with tractors. Temporary pastures are enclosed with the latest electric fences.

In the course of three years, Robert McAllister has developed a wholesale business in pork hams, shoulders, spare ribs, puddings, and sausages. In addition to his own hog-raising program, he furnishes an accessible cash market for hogs grown by the agricultural students and farmers of the community.

The success of this farm business program has been due largely to the fine support given McAllister by his wife and Professor S. C. Anderson (the instructor of the evening class of which he is one of the members), and both races of the community. His greatest satisfaction is derived from serving his fellow-man without regard to race.

**The Farm Group Project as a Basis for Instruction**

Roland W. Whitney, Teacher  
Johnson and Hyde Park, Vermont

EVERY teacher of agriculture who has taught a few years has found that among the various methods he has used in teaching there are one or more that have stood out as having been more successful than the others. So it is, as I think thru my own teaching experience, I find there is none that has been of greater help and has given more satisfaction than have the group farm projects we have carried on the past few years. It seems to me there has been much improvement in the attitude of the boys toward the agricultural course since we began using this method. There are several reasons why I like a group farm project. They may be listed as follows:

1. It stimulates interest in classwork. Here is a job that seldom fails to arouse the interest of even the most disinterested boy because it is real and seems worth while to him.
2. It stimulates interest in the F.F.A. chapter because the returns from the project go to help finance the F.F.A. activities. A good F.F.A. chapter must be properly financed.
3. A well-conducted group farm project furnishes favorable publicity in the community. (Likewise the opposite is true.) Here is a good opportunity to introduce newly recommended varieties and practices into the community.
4. If well conducted, it will furnish a set of records which may serve as a guide in developing an individual farming program.
5. It is an excellent opportunity to teach boys how to work together as a group. Group effort is becoming more and more important.
6. It helps, in a way, to solve the problem of the village boy with a poor farming program due to the lack of facilities. If he has done the best he can with what he has and has taken an active interest in the group farm project, I feel better satisfied when it comes to giving him final credit. However, do not misunderstand me on that point; the group farm project should not serve as a substitute for the individual farming program.

(Continued on page 18)



## Improving Instruction in Part-Time Classes

G. F. EKSTROM, Teacher Education,  
St. Paul, Minnesota



G. F. Ekstrom

COURSES dealing with part-time and evening-school instruction for teachers of vocational agriculture are quite common to the summer session offerings in teacher-training departments. Summaries of the discussions which have occurred in these classes, and of plans for adult programs which the members have made for their communities while enrolled, have appeared frequently in this magazine. The February, 1940, issue included an article listing some of the suggestions and recommendations which were formulated by a class enrolled for a course in part-time instruction at the University of Kentucky during the previous summer.<sup>1</sup> The present article is intended to supplement the foregoing one by indicating some of the activities for which teachers enrolled in the 1939 summer session at the University of Minnesota have since been responsible.

The Minnesota course occupied a period of six weeks and covered both part-time and evening work. Twenty-seven students, including a few men from other states, were enrolled. Dr. R. W. Gregory from the U. S. Office of Education was present for one week, during which the discussion took the form of a conference on part-time work, and in which teachers of vocational agriculture, aside from those enrolled in the course, participated.

An attempt has been made during the present year to keep in touch through correspondence and in some cases by visitation with the men who took the course. These contacts reveal some variations of procedures from those normally being used by the group in their instruction of part-time classes.

1. These teachers sense increasingly their responsibility for providing individual, group, and class instruction for rural young men.
2. There is a growing tendency on their part to co-ordinate the instruction for the young men with that of young women and with other educational programs which exist in the community.
3. A majority of the teachers made surveys of prospective students using forms similar to the form advocated by the U. S. Office of Education.
4. The length of the part-time courses is being extended, with arrangements provided for in-

frequent meetings after the period of intensive instruction has ended.

5. Some experimentation was made during the year with the organization of subject matter on the cross-section basis.
6. Individual and group instruction are used by this group of teachers to supplement class instruction more than was the case previously.
7. Co-operative projects have been set up in some of the departments as a major part of the farming programs of the students.
8. An increased amount of emphasis has been devoted to the problem of placement.

### Comprehensive Programs

One of the larger programs of part-time work in Minnesota is at New Ulm, where 74 young men were enrolled during the year. The school consisted of three sections: one taught by the agriculture instructor which made a study of problems in dairying, and two shop units taught by instructors of industrial education who received special compensation for their services. The school has been in operation for five years and is made up primarily of boys without high-school training.

Minnesota has not proceeded as far as have some states in setting up community programs of education for out-of-school groups. However, a few departments are working in this direction. Where part-time students are involved the development ordinarily begins with the co-ordination of courses and activities for groups of young men and young women. At Faribault a rather complete program of adult education was organized during the winter, patterned somewhat after the Sac City, Iowa, plan. The instructional program included (1) a course in soil conservation for adult farmers, (2) courses in woodworking and mechanical shop work for young farmers, and (3) courses in sewing, home management, cooking, and art for young and adult women.

The expansion in the program of vocational agriculture, including the teaching of more courses for out-of-school groups, is making a heavy demand upon the time and energy of teachers. Certain departments in the state are meeting this problem by teaching courses at different seasons of the year. A limited number of departments have employed special instructors to teach part-time and evening classes. A few other departments expect to reorganize on the two-man basis and thereby provide more instructional time for adult groups.

### A County Plan

St. Louis County, Minnesota, has 16 departments of vocational agriculture, 10 of which operate under the direction of Felix Nylund, supervisor of agriculture for the county rural schools. While enrolled at the University last summer Mr. Nylund set up a program for organizing and conducting part-time classes in the schools operating under his supervision. Largely as a result of his plans, four additional classes for young men were organized during the year. Surveys of out-of-school youth which were made in seven of the communities are being summarized by Mr. Nylund as a research problem.

Some attempts were made in St. Louis County to organize subject matter for the part-time classes on the cross-section basis. These attempts were not entirely successful and the teachers are of the opinion that the plan is most practical in situations where courses are planned for several years in advance and where classes meet more often than twice a week for a period each year.

The use of individual instruction in the school room is handled in different ways with some of the schedules calling for an hour of group discussion, where classes meet in the evening, followed by a period when the students work on individual problems. In some of the classes observed, a majority of students chose to do individual work at the close of the session rather than to participate in recreational activities which were provided. In the class conducted at Esko a limited number of sessions were designated as class discussion periods and an invitation was extended to the members to use the library and equipment in the department for individual work during the other sessions. The instructor found the facilities of the department and his services very much in demand by the young men on the nights designated for individual work.

The co-operative movement has a strong following in northeastern Minnesota where a federation of co-operatives exists. As a result many of the farming programs set up in connection with adult classes in this area center about the organization of bull rings, breeders' associations, and potato growers' associations. Students in several of the part-time classes in St. Louis County are participating in co-operative activities of these types. At least three of the classes are purchasing forestry planting stock thru the rural school system in the county and another has started a nursery for the production of plantings to be used for windbreaks, wood lot replacements, and farmstead beautification.

### Placement

The instructor at Belle Plaine, Minnesota, C. M. Painter, has been as much concerned with the problem of placing young men in farming as has been any teacher in the state. When the department was established in 1938 Mr. Pain-

ter immediately made a preliminary survey of the young farmers in the community and started a program of instruction for them directed toward establishment in farming. He then proceeded to analyze the farming needs in the area and to chart data as to opportunities for placements in the community. More recently the instructor has been making a detailed survey of the present and prospective students for his part-time classes, together with their degree of establishment in farming and

the opportunities which they have for becoming further established at home. Thru the program of part-time work which the instructor is conducting and the accumulative record of placement opportunities which is being built up, Mr. Painter believes he can be of better service to the young men of the community and to the owners of the land on which his students desire to become operators.

<sup>1</sup> Armstrong, Watson. "Fundamentals in Formulating a Part-Time Program." *The Agricultural Education Magazine*, pp. 152-153.

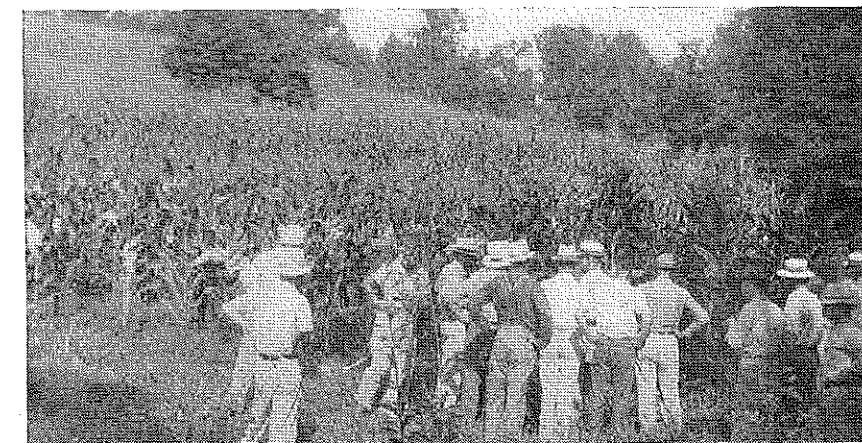
## Sixteen Years With Adult Classes in the Same Community

J. F. POTTS, Teacher,  
Lincoln, Virginia

When I first started teaching vocational agriculture in 1923 I did not attempt to conduct an adult evening class. This was because of timidity and lack of confidence in my ability to organize and conduct such a class. I felt that a large majority of the prospective members of the class would have had much more practical experience in farm problems than I. However, the second year my state supervisor gave me the "green light" and intimated that it was up to me to go.

I organized and attempted my first adult class with fear and trembling. Much to my surprise, I found the members of this class very sympathetic with my efforts, and willing to help very materially in making the class a fair suc-

cess. I also soon became very enthusiastic about this type of class and enjoyed it as much or more than I did my all-day classes. I have also found that my adult classes are capable of doing a wonderfully good job of educating me, particularly along the lines of practical farming in a specific community. Teachers sometimes tend to become too theoretical in all-day classes with boys, and find that the boys are really not putting into application many of the things taught. Not so with the adult classes. If the course is impractical the members soon let the teacher know it.



The class visits the hybrid inbreeding and crossing plot of one of the members

### Use of Advisory Committee

In organizing this class each year we have a meeting of an advisory committee composed of the school superintendent, the high-school principal, the chairman of the county school board—who happens to be one of the original members of my first class and a leading

dairy farmer in the community—and about three other local farmers who are interested in community improvement and the work we are doing. I try to select men at different age levels on this advisory committee in order that we may get the viewpoint of the age levels which will make up the class. The members of this committee, except the official members, are changed from time to time in an effort to get a somewhat different viewpoint in selecting the work for our class. This committee meets with me and we outline the course before the first class meeting. Occasionally we have a meeting during the progress of the course to check and make any changes which seem desirable either in content of the course or the method of presentation. They also meet with us at our

I am now conducting my sixteenth evening class with adult farmers in the same community, having had one each year since 1924. I still have a few of the original members of that first class with

a summary of the year's work is given dealing with all types of instruction.

The community in which this particular class is located is predominantly a dairy farming section where milk is produced for the Washington, D. C., market. This has had much to do with the fact that our class over this period of years has centered most of its activities around dairying and the various contributory enterprises which help to make dairying more profitable. We frequently deal with such problems as would arise out of an effort to produce alfalfa more successfully for our herds and the improvement of corn and pasture as feed crops for the herds. At our last meeting we discussed "The present co-operative marketing law in Virginia, the proposed changes in this law, and its effect on dairy farmers." An amendment has been introduced in our state legislature at the present time which, if passed, would seriously handicap the co-operative marketing of farm products including milk. At the conclusion of this discussion the members of the class decided that we should each write our state senator and state delegate and let them know how we felt about the matter.

### Effective Use of Panel Procedure

As to the methods used in conducting adult evening classes, I have tried several. For our particular group something in the nature of a panel discussion of the problem is used, followed by a general round table discussion, and a summary of the conclusions reached. This has worked as well or better than anything we have tried. In these panel discussions I generally select three or four members of the class who seem best qualified to discuss the topic and meet them long enough to outline the job and give them time to organize their thoughts before the class meets. I sometimes use the panel method without the preliminary meeting of the panel, but I believe we have secured best results when we did get together and outline our course of procedure in advance. During the discussion these three or four members of the panel take the lead in the discussion and the other members of the class contribute their experience or ask questions to bring information they desire. During the course I make an effort to get all members of the class to serve at least once on a panel but do not press them too much if they appear too timid. Most of them enjoy serving, and after it is over will occasionally express their appreciation for having been given a chance. We seldom use outside speakers for our class unless we have some very technical problem which our members cannot handle. On the other hand, we try to capitalize on the ability we have in class and develop self expression and participation among the members. I actually believe this plan is far more effective in bringing about improvements if the teacher has a fairly progressive group.

Our class meets during January, February, and March when there is not too much rush work to be done on the farms and when the farmers are not too tired in the evenings to come out to the class. We usually have 10 meetings a year and they last about 90 minutes.

(Continued on page 18)



## Motor Learning

CARSIE HAMMONDS, Teacher Education,  
Lexington, Kentucky



Carsie Hammonds

MOTOR learning refers to the learning of manipulative or muscular or motor skills, all names for the same thing, in which muscular movements predominate. Obviously, motor learning involves learning to do—involves acquiring sensory-motor co-ordination. Practice is necessary in order to acquire the co-ordination needed for motor skills; the coordinations do not at first exist. Trial and error learning is always present in motor learning. Successive trials must be made. To be sure, in simple instances we may be able to prevent gross errors in direction of movement; but speed and precision will be lacking, the co-ordinations will not be there, skill will be absent. The efforts of the beginner are poorly co-ordinated; they are awkward and ineffective. This is normal; it should be expected by the teacher.

In the experimental work on the process of acquiring motor skills, there have been two main variables—the *time* taken to do a unit of work, and the *quality* of the work done. A decrease in the amount of time necessary to do a piece of work, without decreasing the quality of the work, is evidence of acquiring skill. Likewise, an improvement in the quality of the work, without increasing the time, is evidence of acquiring skill.

## The Learning Curve

Where skills already possessed contribute materially to the skill being acquired, rapid initial progress is usually made. Otherwise, progress may be slow indeed. In motor learning there is often a period of apparently no progress, in which the curve flattens out or forms a plateau. A plateau may be due to many causes. It may be due to the fact that one has reached a point in development where a number of separate items have to be attended to, the task of co-ordinating them delaying observable improvement. It may be due to low standard of attainment, there being no *pull* toward a higher standard. It may be due to unnecessary movements that stand in the way of improvement, regardless of effort. It may be due to lack of knowledge as to how to proceed. It may be due to lack of frequency or intensity of practice. It may be due to conflicting methods of practice. The curve, of course, always tends to flatten out as one reaches perfection or approaches his physiological limit. In this

connection, the following statements are made by Trow, in his *Introduction to Educational Psychology*, p. 228:

"The amount of practice required at the upper end of the learning curve to obtain a certain amount of improvement is much more than is required for the same amount of gain at the lower end. For in most skills... whatever they may be, anything approaching perfection is obtained only at the cost of a great deal of time and effort, more than the majority have the inclination to expend, in view of all the other things they want to do. Excellence in any skill or art, however, demands this added effort."

## Role of Kinesthetic Sense

Kinesthetic refers to the sense whose end organs lie in the muscles, tendons, and joints and are stimulated by bodily movements and tensions. The kinesthetic sense directs and controls the motor skills more than any other sense. It reports movements of muscles, tendons, and joints; it makes precise co-ordinations possible. We depend on the kinesthetic sense to get the "feel" of a thing—the proper grip, or hold, or stroke, or swing, or pressure, or what not. This is something different from the sense of touch. One cannot depend solely on the sense of sight or touch when he uses the hammer or the saw, or when he performs any other motor skill.

An important implication of the role of kinesthetic sense is that a motor skill cannot be acquired by merely looking on or by listening to an explanation of it. The learner must engage in the manipulative act, must engage in the doing. He must get the "feel of the thing" first hand, in order to have a motor skill. No doing or practice, no motor skill.

## Role of Visual Observation

The preceding statements do not imply that the visual sense has nothing to do with acquiring a manipulative skill. Visual observation by the learner is often helpful, sometimes almost indispensable, to the acquiring of a particular skill. In skills in which the hands are used, for example, the hand can be watched as it learns. Visual observation is important in still other ways in promoting motor learning. It may play an important role in the learner's getting a concept of what a finished product looks like. The finished product may help establish the mental standard toward which the learner is drawn as he practices. The establishment of a standard is important. In nearly all motor learning it is wise to direct attention upon the result to be attained. However, in many instances the *process* of per-

formance can and should be demonstrated to the learner. It is easier to show one how to hold the saw, for example, than it is to tell him. There is often more likelihood of being understood when one is shown. Thus, demonstration has an important place preceding manipulative performance by the learner, and often at various stages in the development of the skill.

Where oral or written instructions need to be used, as they often do, the instructions should be very explicit, from the standpoint of developing motor skills. The teacher should try to lead as directly as possible to the formation of correct habits.

## Necessity of a Goal or Objective

The learner must know in general what is to be done and how to do it, especially *what* is to be done; and he must attempt to do it. Naturally, this knowledge cannot be extended to such aspects and particulars as the learner will be able to appreciate only later on. But goal-activity there must be, for it is only with reference to some goal that integration of an act of skill can take place. One cannot acquire an act of skill by passively going thru or being put thru the motions of the physical act. Whatever the resulting action, it would be something other than a skill. One of the biggest tasks in developing manipulative skills is to get the learners to appreciate and accept the good-performance or good-workmanship goals of adult behavior. We too often hear the expression, even from instructors, in commenting on work done: "That is pretty good for a boy."

## Knowledge of Success and Error

Here we again meet an old friend, knowledge of success and error. If the learner is making errors but is not aware of the errors, there is no likelihood of decrease in the errors. The teacher should realize that errors may be learned thru practice, as truly as anything else may be learned. Thus he must know good performance; he must be on the watch for errors practiced. Errors cannot well be avoided in motor learning; but they can be eliminated, provided the learner becomes aware of them, desires to eliminate them, and is capable of learning the correct procedure. It is not meant to imply that the stress should be placed on what *not* to do. Far from it. Establish a standard, demonstrate good procedure, help the learner know wherein he is succeeding. When the learner realizes that "that's the way," the kinesthetic and visual senses have something to go by; there is satisfaction, which helps promote learning in making for vividness and in encouraging a repetition of the movement to acquire skill.

All of this emphasizes the need for instruction in the learning of many of the motor skills, rather than leaving it to the individual to learn them by the pick-up method.

## Accuracy vs. Speed

The following statements are from *Principles of Educational Psychology*, by W. D. Commins, p. 383:

"The objective of skill should be accuracy first, then speed. The experimental reason for this is that it has been found easier to develop both speed and accuracy by first stressing carefulness than by trying to correct errors after an attitude of careless speedy work has been acquired. It would seem, however, that speed, where desired, must be made a conscious objective for the learner as early as is possible without sacrifice of accuracy. Because of the differences between a slow and a quick action, as motion study has shown, the setting of the two is not quite the same."

## Intelligence

Davis, in his *Psychology of Learning*, pp. 138-39, after reviewing several studies, makes the following statements:

"Indications from these and other studies are that intelligence plays an important part in the development of motor skills. One of the functions of intelligence is to control and co-ordinate muscular activities. Skills of the simple type require a limited amount of mental co-ordination and direction and therefore bear little relation to intelligence. The simpler skills are primarily dependent upon reflexes and instincts where intelligence and training are not essential. In the complex skills intellectual control and training are necessary. Complex motor skills, therefore, become an index to intelligence."

Mechanical intelligence and abstract intelligence are not the same thing, nor do they necessarily go together. Obviously, abstract intelligence is more necessary to the acquiring of some motor skills than others. We must not assume that general intelligence is a good criterion of the progress an individual will make in developing a motor skill. In the first place, differences in mechanical capacity do not account for all of the differences in development of motor proficiency. Often the brighter students take less kindly to the drill necessary to possessing a motor skill. This weakens motivation and interferes with the efficiency of practice. The duller pupils often seem to enjoy drill work. Temperament and other personality traits and conflict of interests may also tend to obscure the relation of intelligence and skill.

## Concluding Statement

Almost everything we know about the learning process applies to motor learning. It is learning; therefore the principles of learning apply. While all motor skills carry with them the necessity of trial and error learning, conditioning learning and insight learning may enter in. It is easy to see how conditioning learning may be related to getting the "feel." Often, too, relationships to the whole are seen rather suddenly, which is the essence of insight learning. An interesting example of such insight is found in watching the young child trying to cut with the scissors, the paper slipping between the blades. When he apprehends the relation of the movements, as he may quite suddenly, he no longer has the difficulty.

The same principles of learning apply to motor learning as apply to other kinds of learning. The same factors influence motor learning as influence other kinds of learning; set and motivation, maturation, objectives, and the others. Improvement usually takes place most rapidly under instruction. As in other kinds of learning, over-learning or subsequent use or both are necessary for re-

## Reflecting Rural Needs in the Farm Shop Program

C. C. EUSTACE, Teacher,  
Hoxie, Kansas

THREE years ago I began my teaching career in a new department of vocational agriculture, located in the middle of the drouth area. This made it rather difficult getting started because farming programs had to start from very little. As a consequence it seemed to me that it was easier to develop an interest in a farm shop program than in a farming program. I have found that well-executed farm shop jobs, fitted to the community, are some of the strongest links that tie the farmer's interest to the program of vocational agriculture.

In teaching shop skills to beginning pupils, much time is spent in the classroom on each new phase of farm mechanics before a group is allowed to work on it in the shop. Such a detailed study of the work makes mastery of job sheets easier and more thoro, as well as reducing mistakes. Few shop jobs are brought from home by the first year boys as the skill training required of them takes all the time available in the shop. I also find it easier to instruct a group of boys engaged in doing the same job than when each is on a different job. Thoro mastery of a simple job builds interest and confidence. An analysis of more difficult jobs makes it possible to break them up into a series of simple jobs.

## The Use of "Leader Jobs"

By the end of the first year, if I have reached my objective, the freshman boy has a fairly good basis of fundamental skills that he wants to apply the following year to more difficult shop jobs. Here I find leader jobs very useful. For example, three years ago the school board allowed me to purchase and repair in the shop an old 1½ h. p. gasoline engine. Shortly after it was running, two more old engines were brought in by interested boys. This engine is used to provide instruction on simple motor ills. The boys work on it in pairs and are anxious for their turn to come to make it run after it's been thrown out of adjustment. It acts as a lead sheep in a packing plant drawing other motors into the shop. The first poultry feeders made in the department were constructed of scrap lumber belonging to the school and were sold at cost. Since then we have always had one or more in the process of construction. Concrete hog troughs, ladders, chicken waterers, and forges are other examples of lead jobs which have been made and served to promote good farm shop work. At

present we are building a two-wheel trailer to be used by the school. It is drawing much comment and I hope it will act as a leader.

Accumulation of old saws, other tools, and implements by the students has helped in getting jobs into the shop as these tools, in nearly every case, need reconditioning. Farming-program needs are the source of many good shop jobs in the form of troughs, feeders, nests, and bunks. Lack of finances has prevented the building of brooder and farrowing houses in several instances. Plans and blueprints of recommended equipment are available to the boys for study and are frequently used.

## Bringing in Machinery From a Distance

The difficulty of getting farm machinery into the shop from distant farms has been overcome by the co-operation of an implement dealer, who will loan us his machinery trailer and pickup, the boy furnishing the gas and the instructor driving the truck. This same dealer, thru loaning us two old junk tractors to study and work on, has been instrumental in lining up several tractor jobs.

An open house held by the school, together with visits to the shop by several farmers, has uncovered three corn binders that need overhauling this year. A job of this type is torn down in large units so that reassembling the machine will be simpler and no parts will be lost during the operation.

## No More Broken Down Organs!

A good grade of workmanship aids in getting desirable jobs for the boys. A good paint job attracts the attention and interest of farmers, whereas an unpainted one would not. We have a branding iron that stamps the name of the school on all worthy jobs that leave the shop, which gives the boys an incentive for better work.

Once established, a good shop program can be maintained without great difficulty because the jobs we do are constantly confronting every farmer who carries on a diversified type of work. I find the requests to make furniture and picture frames from broken down organs and discarded beds are becoming less and less as the community realizes the practical rural nature of the work done in the farm shop.

Worth-while folks don't just happen. You aren't born worth while; you are born only with the possibilities of becoming worth while. Your job is to discover and develop the man or woman you ought to be. Sooner or later we sit down to the banquet of consequences. —R. L. Stevenson. Selected from IHC Bulletin, *Young Folks—Do Something and Be Somebody*.



# Can You Drive a Tractor?

JAMES F. MERSON, Agricultural Mechanics Department,  
California State Polytechnic, San Luis Obispo, Calif.

CAN you drive a tractor? Can you harness and work a team of horses? These two questions are often asked of graduates of agricultural colleges by their prospective employers, or the assumption is frequently made that any graduate of an agricultural school must, of course, be competent in these two most fundamental of farm skills.

We often take for granted a great many things that just aren't so. If a careful check were to be made of the graduates from various agricultural schools and colleges, and teachers of agriculture, too, for that matter, we would be surprised to find how great a number had little or no training or experience in actually handling horses and tractors aside from the fact that they had often seen someone else doing it.

It is because of this fact that the California State Polytechnic requires that all students graduating from the agricultural division be able to operate, service, and make the necessary field adjustments on several common types and makes of tractors and to operate with these tractors the various pieces of farm machinery and equipment with which they are used. It is also required that each student be able to groom, harness, hitch, and drive a team of horses, working them with various pieces of farm machinery and equipment.

Credit is given upon satisfying both manipulative and informative examinations in these subjects. If a student is an experienced tractor driver or teamster he can usually, altho not always, pass these examinations on his past experience. If he has had little or no experience he takes a course called "Farm Skills," in which he actually learns to do these various things by doing them.

## Fundamentals Come First

In the course on tractor skills the students are first given group instruction in the fundamental principles of the internal combustion gasoline and Diesel-type engines. Proper servicing and common adjustments are explained and demonstrated. Each individual is then given an opportunity to start the various tractor engines and to service and adjust them. Trouble-shooting on the most common field troubles is also a part of this instruction.

The function and care of the various parts of the running gear on various tractors is then studied, at which time the students learn about the various clutches, brakes, gears, and other controls.

After all this has been thoroly studied, the tractors are taken out on the practice lot where each student takes his turn driving the different machines. He learns to stop and start and finally to maneuver in and out of difficult situations.

At the satisfactory conclusion of this preliminary practice period which usually takes from four to six meetings of the class, the tractors are hitched to various farm implements in season. In

the fall quarter plowing, disking, harrowing, seeding, and land leveling are the main jobs. In the winter these are continued, together with road grading, ditching, and contour work. In the spring cultivating and hay-making activities occupy most of the work calendar. Each year all of the 700 acres under cultivation at California State Polytechnic are tilled, seeded, cultivated, and harvested entirely by the students.

Not only do the students learn how to drive tractors but they also learn how to hitch, adjust, and operate all the various implements used behind the tractors in the above-mentioned operations. It is surprising, for instance, to see how few beginning students know which way to start plowing a field, either by lands or by plowing around the field. They are just as apt to start plowing around the field clockwise as counter-clockwise.

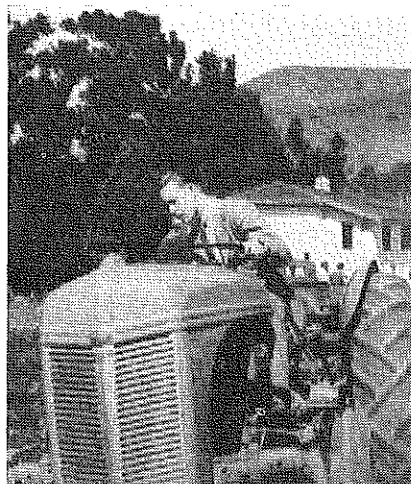
To us who have never driven a tractor or who drive one so well that it has become second nature to us, it is hard to appreciate how difficult it is for the beginning student to master all the controls on a big tractor and to develop the muscular co-ordination necessary to operate it smoothly.

## Poor Drivers "Get the Bell"

In order to facilitate teaching and to enable the student to recognize his mistakes more readily, as well as to cut down wear and tear on the tractors, the writer has devised an ingenious system of bell signals which is installed on each of the track-type tractors used at California State Polytechnic. So long as the tractor is operated properly the bell is silent, but if a student applies a steering brake before fully releasing the corresponding clutch the bell rings. If he engages the clutch with the brake not fully released, or uses the right clutch and the left brake, or does anything else not exactly as it should be done he "gets the bell." Usually the rest of the class, who are looking on, furnish the neces-

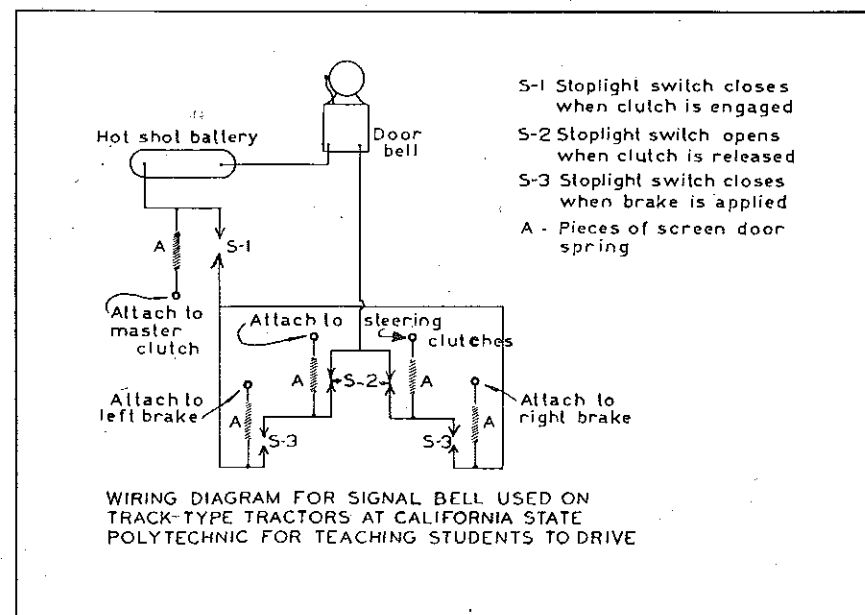
sary comment and it becomes a game to see who can operate the longest without getting the bell. This not only helps the student in developing the proper co-ordination between hands and feet, but assures the instructor that none of the drivers will be found "riding the brakes."

AT THE conclusion of this period of training and after each student has shown a reasonable degree of skill at various farm jobs in season, a final manipulative examination is given on a point basis. This involves hitching up to a given implement, backing a two-wheel trailer or a four-wheel grader into a stall, or cultivating an "orchard" of stakes against time. Points are awarded on accuracy and time required, together with number of times the operator rings the bell.



Each student takes his turn driving the different machines

The student is also given a written (or oral) examination on the various types of lubricants used, and periods at which the various parts of the tractor should be lubricated. This, together with his knowledge of the common field adjustments and how to make them, his ability to handle the tractor as shown by his work during the term, and the manipulative examination explained above, helps the instructor to know whether the student could be recom-



mended to handle and care for a tractor either on his own farm or for someone and its usual complement of equipment by whom he might be employed.



Cultivating an "orchard" of stakes against time is part of the final examination

## Selecting Jobs to Be Done in the Shop

MACK M. JONES, Department of Agricultural Engineering,  
University of Missouri

MECHANICAL work on the farm presents such an endless variety of jobs that it may seem at first to be a simple matter to secure or select jobs for the boys to do in the shop. The main objective of a course in shop work is to develop skill, ability, and judgment on the part of the student. When this objective is kept clearly and definitely in mind, it becomes evident that not every mechanical job that needs attention on the farm or that may arise around the school shop is a good job for the school shop.

Shop work can be broken down into a surprisingly small number of elements or fundamental processes such as planing, sawing, and squaring up stock in woodwork; and filing, hacksawing, and drilling in cold metal work. Once these elementary processes are mastered, the student is well on his way to success in shop work. The jobs for instruction in the shop should therefore be selected primarily upon the basis of fundamental operations involved. With this guiding principle in mind, the instructor can soon assemble or work out a few basic jobs, which can be used effectively to teach the basic fundamental processes. These jobs need not be just "exercises." They can and should be useful appliances. For economy of materials, they should preferably be small, for there is bound to be some waste among beginners. After a certain proficiency is attained in the elementary processes, the student may do the larger and more difficult jobs such as may originate around his home or farm.

## Guidance Needed

The teacher needs to guide the student in the selection of his jobs or shop projects. Sometimes a student may become rather proficient in one line of shop work, or one kind of job, and want to make several appliances of the same kind. Students have been known to make several ladders, for example, all just alike. Sometimes a class may want to spend several months in making hog houses. Occasionally a boy will become

more or less expert at saw filing, and will spend his time in shop at filing saws for all the neighbors, charging a small fee for each saw. Not every such case should be condemned, of course, but in general it is better for the boy to spend his time and efforts learning something new rather than in repeating jobs which no longer have instructional value to him. The teacher, therefore, needs to be on guard to see that his students receive a well-rounded yet thoro training in shop, and the shop jobs should be selected with this in view.

THE shop jobs, particularly the beginning ones, need not be essentially different in different communities. It is the practice, and a most excellent one, for the teacher to make a survey of his community and to use the survey as a basis for his teaching. Presumably, then, in a dairy community the jobs done in the shop might be largely dairy appliances, while in a poultry community they might be largely poultry appliances. The principles of woodworking or the principles of soldering are exactly the same, however, regardless of whether they are used in dairy projects or in poultry projects or in some other kind of project. Once the principles are mastered, and the student has acquired good shop habits, he will be able to apply the principles to any kind of project.

IN ORDER to insure a well-balanced training in the various phases of shop work, the instructor might well use a few standardized shop jobs as a nucleus around which his course is built. A student might reasonably be required to do three or four out of a list of ten or more simple woodworking jobs before he starts work on the larger jobs like feeders, gates, etc., that he may need at home. And, of course, the instructor should see that the boy does the projects thoughtfully and that he conscientiously tries to use the tools correctly and perform the fundamental processes properly.

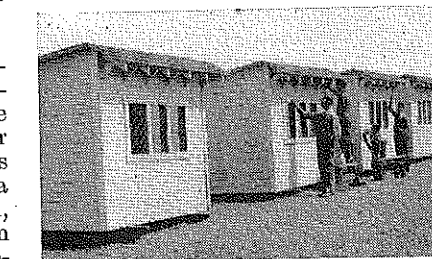
In selecting jobs to be done in the shop it should be kept in mind, therefore, that many jobs that present themselves and many jobs that really need doing around the boy's home or farm are not good jobs when judged for their instructional value. And it should be remembered that the boy should do few, if any, jobs in the shop that do not have real instructional value to him.

## Portable Farm Buildings as Farm Shop Projects

P. K. JONES, Teacher,  
West Valley High School,  
Millwood, Washington

FARM building construction is a major mechanical operation on most farms. Therefore, it should have a major place in our farm shop courses.

At West Valley, we have frequently met this problem by the construction of small farm buildings on skids which make them readily portable or movable. They are constructed just outside the school shop. Upon completion, they are moved to the farms. In some cases a boy will construct such a building, with the help of a fellow student, and take it home to use in connection with his home project. In other cases, a neighborhood farmer will purchase the required bill of material from a local lumber dealer, have it delivered to the farm shop for assembly, and upon completion take the building home. Such shop projects provide the boys with experience in framing, rafter-cutting, siding, shingling, door construction and hanging, electric wiring, painting, etc.



The accompanying photograph shows several West Valley boys putting the finishing touches on four portable poultry houses. These buildings are 10 by 12 feet in size and will accommodate 350 baby chicks or 40 layers. We have built dog kennels, "A"-shaped farrowing houses, and 10- by 16-foot garages. However, the portable building which is most in demand at the present time is an 8- by 8-foot house having an even span roof, 5-foot studdings on the sides, door in the gable end, and one window on each side. This building will accommodate 150 baby chicks or 20 layers. It may also be used as a farrowing house, or it will accommodate two feeder sheep. This little portable house is not only versatile in use, but is unusually attractive in appearance.

One of the highest marks of an intelligent person is his willingness to say, "I don't know," and one of the most un-failing signs of an ignoramus is his desire to appear to know what he does not.—Doctor Frank Crane.



# Studies and Investigations

C. S. ANDERSON

## Out-of-School Rural Youth Enter Farming<sup>1</sup>

C. S. ANDERSON, Teacher Education,  
State College, Pennsylvania

IN 1929, 41 rural high schools in Pennsylvania co-operated in an extended study designed primarily to discover important facts concerning the vocational interests of rural high-school pupils. Accumulative vocational interest histories were prepared at that time for 1,242 pupils, boys and girls. This larger, long-time study,<sup>2</sup> reported in 1937, opened almost innumerable smaller and more specific problems relating to the intelligence, the vocational interests, the employment and occupational status, and the economic and social progress of the former high-school pupils. The study definitely revealed a need for more functioning vocational guidance in rural high schools and for more accurate occupational information.

Following the study of the group as a whole, the writer turned to the high-school and post-high-school records of 185 boys who dropped out of school before graduation, and endeavored to analyze and classify the reasons given for the boys' leaving school, and to bring to date a record of their employment.

### What Became of Boys Who Dropped Out

In general, they left school because they lost interest, and they lost interest when they found that they could not do the work that the school required of them. Sometimes they desired to study subjects which their schools did not offer. It became necessary for some to obtain employment in order to support themselves and other members of their families. In some cases schools were inaccessible and transportation difficult. Many were definitely socially maladjusted. A few struggled against adverse home and family influences. Among the 185 who dropped out sometime prior to graduation from high school, 54 were discovered to be farming.

Out of every 10 boys who entered the ninth grade in rural high schools in Pennsylvania, 4 dropped out of school sometime prior to high-school graduation. Approximately one third of those who dropped out became farmers, a larger number than those going into any other kind of occupation. Members of the eliminated group were more important as potential farmers than were those who were graduated.

According to information gathered



C. S. Anderson

from the records of 704 cases, 25.2 percent of the boys who were graduated expressed a desire when they entered high school to be farmers. Only 20.6 percent of the same group wanted to be farmers when asked the question at graduation. On the other hand, among the boys who started in high school and later dropped out, 28 percent desired to be farmers when they entered high school; but when they withdrew, 42 percent chose to farm.

### What Boys Will Become Farmers

From these facts it may be inferred that the agricultural student who fails to complete his high-school course is more likely to become a farmer than is the boy who remains in high school until graduation. It is reasonable to believe that, because of continuance in school, the graduate learns about more ways of earning a living, and since he probably is superior in ability to the eliminated boy, he enjoys a much wider range of vocational choice.

An analysis of the data secured thru a survey of the eliminated high-school group reveals not only that their interest and their hope lie largely in agriculture but it also reveals their need for further vocational training and vocational guidance. There is no doubt that vocationally they are handicapped and underprivileged. As a group they are eager for part-time and evening-class work in agriculture. Eighty-four percent of them would like to attend such classes, but as yet only 32 percent of them have had the opportunity. They need more training in agriculture if they are to farm efficiently. They constitute an important and potential nucleus for part-time and evening classes, and they present a real challenge to teachers of vocational agriculture.

### Some Characteristics of the Group

**Intelligence.** The boys who dropped out of high school were shown to be of lower intelligence than those who remained in school and were graduated. Furthermore, those who dropped out of high school and who became farmers possessed less intelligence than the drop-out group as a whole. The mean intelligence quotient for all boys who entered high school was 91.5; but for those who quit school and farmed, it was 88. For the latter group, the range of intelligence scores was 70-105, and the median score was 89. A very close relationship not only prevails between low intelligence and withdrawal from school, but also between low intelligence and early withdrawal from school.

**Educational levels attained.** As a group, the boys who quit school to farm reached

a school grade level before quitting of 9.6 years. The mean age of the group in September of the year when they entered high school was 15.5 years. Their present mean age is 25.5 years.

**Occupational preferences.** In September, 1929, all members of the group, at that time freshmen in high school, were asked to indicate their choices of life work. The request was repeated twice each year they remained enrolled.

Comparatively few of the young men in the group actually got what they most desired in vocational choice or occupational employment. Only 34 percent really wanted to be farmers or to do anything closely related to agriculture; yet now, 10 years after expressing their preference, 100 percent of them are employed in agriculture. Sixty-six percent have not yet obtained what they wanted and probably never will realize their desires.

Fourteen percent wanted to be aviators, but nowhere in their records can it be found that even one has entered aviation. Sixteen percent of them wanted to go into some form of applied mechanics, such as electrical work, machine work, or carpentry. Perhaps the nearest that they will ever come to a fulfillment of their desires will be in the operation, care, and repair of a few essential pieces of farm machinery, or possibly in the operation of a farm tractor or the driving of a truck.

Seventy percent of the particular group under consideration are sons of farmers. The remaining 30 percent lived, at the time of their attendance at high school, in small rural villages. Thru project work and otherwise, every member of the group had some participating experiences in farming.

While 100 percent of the group are now farming, they have, during the years since they withdrew from high school, tried a large number of other kinds of work. They have worked in mines, mills, and factories. They have tried clerking and manual labor of wide description. In every case, however, they have returned to farms and are finding their present employment there.

**Why they quit school.** The men were asked at the time of the personal interviews to state why they did not continue in school.

An obvious and pronounced trend of consistency runs thru these different sources and sets of reasons. They left school: (1) to find employment, preferred or necessary, (2) because of scholastic failure, (3) because they were not interested in the school and its offerings, (4) because they were socially maladjusted, (5) because the school was inaccessible and transportation was difficult, (6) because of disconcerting influences at home, (7) because they would not conform to the rules of school conduct, (8) because they were not physically able to attend longer, and (9) because they passed the age of compulsory school attendance.

The frankest, and doubtless the most

correct, explanations are those offered by the young men when they were interviewed in their homes and on their farms. Looking back now with mature judgment they regret that they left school, they feel the need for more education, and they wish for a way to compensate for their mistakes. Of course, some of them realize that they did not possess the necessary ability to carry high-school work, and that for them there was no alternative.

*What they would like to study.* Assuming that farming is and will continue to be their means of earning a living, the

question concerning further preparation in farming was raised with them. They were asked if they would be interested in attending an evening class in agriculture, and, if so, what they would most like to study.

Eighty-four percent of the group signified a definite interest in attending a series of agricultural evening classes.

1. A more complete report of the above study may be found in Bulletin 385, *Out-of-School Youth Enter Farming*, The Pennsylvania State College, January, 1940.
2. Anderson, C. S., *Vocational Interests of Rural High-School Pupils in Pennsylvania*, The Pennsylvania State College Bulletin.

## WHAT YOUNG PENNSYLVANIA FARMERS WHO DROPPED OUT OF HIGH SCHOOL WOULD LIKE TO STUDY

Order of Preference	Subject	Percent of Interest
1	Dairying	21.3
2	Farm mechanics	16.0
3	Farm management	14.6
4	Poultry	12.0
5	Field crops	9.3
6	Floriculture	8.0
7	Horticulture	6.6
8	Soils	4.0
9	Animal husbandry	2.6
10	Others	4.0

## Status of Special Post-Graduate Courses in Technical Agriculture and Farm Mechanics

G. A. SCHMIDT, Teacher Education,  
Ft. Collins, Colorado

THIS study was undertaken to discover the degree to which land-grant colleges and universities in the North Central Association were offering in their summer sessions short, intensive courses in technical agriculture and in farm mechanics for the professional improvement of teachers of vocational agriculture within their states, and whether graduate credit toward a master of science degree was given for the completion of such courses.

This study is not concerned with professional courses in any phase of education, nor is it concerned with regular graduate courses in technical agriculture and in farm mechanics. The study is concerned only with special courses, of two- to four-weeks duration, offered to teachers of vocational agriculture for the purpose of keeping them informed of new problems, techniques, and developments in the various fields of technical agriculture and in agricultural mechanics; for the purpose of enabling those teachers to acquire needed information and techniques in these fields; and, lastly, for the purpose of enabling those teachers to establish and maintain contacts with the technical college men.

A letter was sent to men in charge of agricultural education in 23 land-grant colleges and universities in the North



G. A. Schmidt

Central Association to inquire whether the institution offered short summer school courses, and if courses carried graduate credit that could be applied toward a master of science degree. Requests were made for circulars or mimeos pertaining to such work.

Replies were received from the thirteen following states: Arkansas, Iowa, Illinois, Montana, Kansas, Michigan, Missouri, Nebraska, New Mexico, North Dakota, Oklahoma, Wisconsin, and Wyoming. Twelve states in the above group give short, intensive professional improvement courses of a technical nature in their summer schools. One state, Illinois, planned to introduce in its summer session such work in the summer of 1940. Three courses are contemplated: animal husbandry, soil conservation, and farm buildings. No mention is made of the nature of the credit to be given for the completion of these courses. In 11 of the 13 states graduate credit toward a master of science degree is given for this work. No graduate credit is allowed for the work at Wisconsin because these courses are only two weeks long. Kansas allows no graduate credit for shop skill courses.

In all cases only a few of the special professional improvement courses are offered in any one summer. The offerings vary from year to year, and new courses are introduced as new problems and needs arise.

### Some Extracts From Letters Received

"Each summer we have offered special technical courses. Our grad-

uate committee has carefully scrutinized them, and we have made some changes in the course content at the suggestion of this committee. I believe the opinion of the committee and of the members of the staff who have taught these summer courses is universally a belief that when these courses are taught to this experienced group of men they are on a distinct graduate level, even tho some of the topics considered are quite identical with those taken up in undergraduate courses."

"It is appreciated that much of the work which these men need is work which might have been taken during their undergraduate days but because of the breadth of the field they did not secure it. Again, it is a matter of keeping up in some of the lines of work which they have had. Whether the future will find us giving graduate credit for this professional improvement or not is still a question. We are convinced it is of equal grade to that being given for graduate credit in many institutions."

In response to a questionnaire a few teachers indicated that they would be willing to take certain technical courses even tho no graduate credit was allowed, but in far the majority of cases the teachers said they would be interested only in certain technical courses provided they could receive graduate credit."

SINCE this study has been started, it has been tentatively agreed upon, subject to the approval of the graduate committee and the faculty council of Colorado State College, by heads of departments, and the director of the experiment station, to offer four technical professional improvement courses in the summer session, of three-weeks duration, carrying graduate credit.

To distinguish these special, short, intensive professional improvement courses in the technical fields from regular college graduate courses, it appears that they should have a characteristic title such as "New Developments and Problems in Animal Husbandry" or "Special Problems in Poultry Production."

It should be mentioned that in a few institutions these special professional improvement courses are not taught by one individual but by staff members of the particular department concerned. This, too, is the plan decided upon for conducting these courses at Colorado State College.

In a publication from Oregon dated December, 1939, was found the following announcement:

"For the first time in four years a three-week summer session for vocational agricultural teachers will be held at Oregon State College from July 8 thru July 26, with courses in current agricultural subject matter, shop work, and teaching methods. A special effort will be made to set up courses which will be of most benefit to experienced agricultural instructors, including those who may come from other states."

## Improving Farm Homes Thru Farm Mechanics

W. C. CRISWELL, Teacher,  
New Milford, Conn.

WE SPEND a great deal of time in our classes teaching breeding and care of livestock, planting and raising of crops, and use and care of farm machinery and equipment, but many of us neglect an important field in our related farm mechanics program—the farm home.

On the dairy farm, barns and milking equipment must be kept clean, modern cooling systems and proper sanitation are required by milk inspection regulations. The dairyman needs running water and electricity in his barns. It pays him to have them. But the home is too often neglected because the farmer cannot see a cash return for money invested. Here is where a well-rounded farm shop program enters the picture.

Because the farm home is a place to live as well as to make a living, efficient use of the farm shop can make the home more attractive and convenient at very little cost. The boy who has had farm shop training in school should have learned the value of home improvement and should have acquired some skill or developed a latent ability in the use of tools. He should be able to make simple pieces of home equipment, such as cupboards, tables, and stools, and be able to repair and refinish old pieces. He should have a working knowledge of plumbing which will enable him to install and maintain a simple but practical water supply and sewage disposal system. Shop work in electricity should have given him the fundamentals of wiring, installation of switches and convenient outlets, and proper lighting.

The boys of today who have learned to do these things will be the farmers of the next decade with the knowledge and ability to make the farm home modern, convenient, and livable far beyond the dreams of the farmers of an earlier era. It is an ideal worth working for in our farm mechanics program.

## Sixteen Years With Adult Classes

(Continued from page 11)

Our enrollment usually runs between 20 and 30 members. At the last meeting of each series we have a little social hour and serve refreshments, not as a bribe for good attendance but rather as a reward. During the past two years we have also held a field trip in August to observe some of the outstanding work done by our class members. These members seem to enjoy the field trip very much and I get a great deal of good information out of it.

After six years of this type of work in the same community a number of changes can be observed. The members of this class can take an active part in progressive agricultural development and community life. They have been active and have taken the lead in recent local developments in pasture fertilization, grass and legume silage, and use of better sires in their dairy herds. Our

community is still afloat to a point which is not surpassed by any community in the state. All dairy members of this class are members of the Co-operative Marketing Organization, marketing milk on the Washington market. The members have been active in a campaign to eradicate Bang's disease of dairy cattle in our county.

During the past two years we have been studying and discussing corn hybrids. Each year several members of the class have grown these hybrids and two members have carried out comparative yield tests on a number of these new hybrids, comparing them with our best local varieties of corn. This was done for the information of the farmers of the community. The foregoing picture shows the class visiting and studying the results of these tests last August. The tests created much interest among the farmers of the county in general, and a large number of people came to see them at various times during the season. We are planning to continue these tests again this year as a means of selecting the best adapted hybrids for our community.

## The Farm Group Project as a Basis for Instruction

(Continued from page 9)

We have conducted a group farm project at Johnson for the past two years. Both have been crop projects and both have been fairly successful financially and from the standpoint of co-operation from the boys. Our first one was financed with money loaned us by the school board. This loan was for a period of six months with the privilege of renewing if necessary. We were able to finance the second project ourselves. In both cases we have received a fair return for our labor. The livestock project would seem a little harder to manage because it would require much more equipment and would need care each day. However, I think that anyone who has the facilities to carry it on would find that it would work out very nicely.

A few conclusions I have arrived at as to the requirements for a successful group farm project may be of help.

1. It should receive the co-operation of the whole group.
2. It should be in keeping with the agricultural needs of the community.
3. The best practices adaptable to the community should be carried out.
4. It should be large enough to seem worth while and to simulate farm conditions.
5. It should have the approval of the school board.
6. It requires careful supervision on the part of the instructor, especially during the summer months, in order that it have the proper care.
7. It must be well planned by the group and all should be familiar with the plans.
8. Storage space will be necessary for the products, or a ready market available at the time of harvest.

It is the province of knowledge to speak, and it is the privilege of wisdom to listen. —Oliver Wendell Holmes.

## Future Farmers in Pennsylvania Farm Show

Russel B. Dickerson, Teacher Education,  
State College, Pennsylvania

MORE than 650 Future Farmers from different parts of Pennsylvania entered exhibits of livestock and farm products in the recent "Winter Agricultural Fair" held in the Farm Show Building at Harrisburg. These exhibits included swine, poultry, eggs, honey, corn, potatoes, vegetables, and small grains. One of the unusual special features was the window exhibits and demonstrations planned by students in vocational agriculture. The theme of each exhibit was based upon some phase of agriculture or Future Farmer activities.

The demonstration contest, a very important part of the Farm Show, was participated in by 30 teams from all sections of the state. Each team developed a demonstration around some central theme, using such devices as models, charts, and visual aids to illustrate the several important points.

The annual meeting of the Keystone Chapter of Future Farmers was held in the Forum of the Educational Building with several hundred delegates from different parts of the state participating. In addition to the election of officers, the Keystone Farmer Degree was awarded to 79 candidates and the Honorary Keystone Farmer Degree was awarded to nine candidates.

## Let's Look at the Records

(Continued from page 7)

ment with older groups of young men on farms has been based quite largely upon the successful undertakings of all-day students. This relationship is shown by the frequency of the several enterprises selected by out-of-school groups (averaging 38 each year) for four consecutive years. One hundred ninety-three studies were completed by the young men, or 1.3 per young man per year.

The order of frequency follows: tractor records following tractor schools, 43; beans, 42; poultry, 24; buckwheat, 21; dairy, 15; cabbage, nine; potatoes, eight; sheep, seven; barley, six; corn, five; oats, four; peas, three; cost accounts, three; and all others, three.

There is a close relationship in the selection of the first two major farm enterprises, poultry and beans, with the ranking shown in Table 2. The emphasis given to the production of small grains is due to the group's interest in and use of power machinery for the production of the more extensive field crops.

6. The study has been most useful in the training of teachers of vocational agriculture. It has been found that it is not enough to have the student-teachers supervise boys, including their record keeping for one year, without making them aware of the values and uses of permanent records also. Our student-teachers have had the experience using this study in relation to the several points developed in this article. We believe that the records for supervised practice in New York may be improved by the broader use and evaluation of permanent records.

\*Productive man-work unit is the average amount of work accomplished by one man in one day.

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