This month's "Stories in Pictures" presents photos made from five of the thirty color slides included in the series "A Future for You — Teaching Vocational Agriculture." The slide series was developed to aid teachers in recruiting future teachers of agriculture.

As an advisor to an FFA Chapter the teacher seeks to develop leadership. His understanding of the leader's role as well as the example he provides helps accomplish this important task.

Today's students who are preparing to be teachers of agriculture work with sophisticated laboratory equipment. Many college courses provide such laboratory experience.

Over the nation vocational agriculture is growing, changing, and improving. But there is a serious shortage of teachers. Last year forty states indicated a shortage of teachers.

Through farm experience and study of vocational agriculture in high school, the prospective teacher of vocational agriculture develops knowledge and skill which a successful teacher should possess.
What is "General" Vocational Education?

"Across the board" and "break down the barriers between vocational services" are terms currently used in calling for more cooperation among the substantive areas of vocational and technical education. More specifically, the contention is that vocational education, particularly at the high school level, should be associated with major emphasis placed on education in broad, generalized skills and knowledge applicable to a variety of occupations. Accompanying this point of view is the allegation that traditional programs of vocational education are concerned primarily with specific skills and consequently fail to provide the degree of occupational versatility essential for a time when many individuals can expect to change occupations several times. In this context traditional programs of vocational education usually are characterized as programs in the various occupational categories (agriculture, business, distribution, health, home economics, and trades). The answer to this contention is that more cooperation among the various fields of vocational education is necessary in order to achieve a more comprehensive education for students.

There is no argument against the need for cooperation among vocational services. There is ample research indicating the fact that successful performance and advancement in almost any occupational area require technical knowledge.
The Vocational Agriculture Teacher as a Team Member

R. J. AGAN, Teacher Education
Kansas State University

Nearby everyone agrees that the Vocational Education Act of 1963 has given more responsibility to the high school teacher of vocational agriculture to clarify within him the responsibility of preparing prospective agriculturists (formerly the charge was limited to farmmen) for proficiency in agriculture (formerly farming). The questions immediately arise from the already overworked teacher of vocational agriculture, "What can I do?" and "How is this extra responsibility possible?"

The writers of the 1963 Act unfortunately anticipated this type of question when they wisely provided that 10 per cent of the funds allocated should be used in research. It was therefore possible to pilot test some innovative ideas aimed at the question of "how." A TEAM APPROACH

One approach to the task of providing adequate educational experiences for future agriculturists was to actually enlarge the problem to include all boys and girls who could profit from vocational education and increase the number of teachers assigned to the task. This in effect would mean an all school approach to preparing boys and girls for the "world of work." In rural areas such a program would still be basically vocational agriculture, since agriculture is the vital core of every life and learning environment. The basic question evolved was, "Could a teacher of vocational agriculture in a rural high school have sufficient background in teaching the other teachers normally found in the school, provide adequate counseling for boys and girls and as a part of a high school curriculum for proficiency in the world of work?"

was that it was the responsibility of a teacher of vocational agriculture in a rural high school to actually find a place for the teacher of vocational home economics who would be an excellent housewife in the problem since she would also be facing the problem of expanded responsibilities under the 1963 Act. There would also usually be teachers of business subjects, shop and mechanical skills, and communicative skills. By coordinating the efforts of such a group of teachers for only a few hours per week under the direction of the vocational agriculture teacher, it was possible that the work would be required of the team of the all the teachers in meeting the vocational education needs of all students.

THE PILOT CENTER

The Kansas State University College of Education and the Kansas State Board for Vocational Education selected the Poila (Kunza) High School as the pilot center for this type of program. The administration and staff of the high school were interested in the project. Pana is a typical rural community of about 4,000 residents. Graduates of the high school enter farming and non-farming occupations. In all ways it served as a typical rural community experiencing the effect of the urbanization of nearby larger centers. Students attending this rural agricultural and vocational home economics were the only rein-}
A Cooperative Banquet Aids an Unified Vocational Program

E. C. KITCHENS
Agricultural Occupations Instructor
Norman, Oklahoma

The vocational education departments at Norman High School have for the second consecutive year organized a banquet honoring students and employers who participate in the cooperative occupational experience programs conducted by the school. Students involved in the banquet were enrolled in cooperative office education (agrometeorological and clerical), cooperative office education (data processing), distributive education, vocational agricultural occupational training, and child care aides (vocational home economics).

Objective of the Banquet

The primary objective of the Cooperative Employee-Employee Banquet is to provide an opportunity for the school, the instructors, and students to recognize those that cooperate with the school by providing training stations. The banquet also provides a chance to inform the business people, the community, school administrators, child board members, parents, and others about the programs of vocational education at Norman High School. Plans for the banquet and the program emphasize the total program of vocational education. Careful consideration is given to information which benefits all of the students involved. Each department has student representation on the planning committee and arranges the banquet programs.

Program Presented

A unified image is projected to the public by presenting information that has been coordinated for all programs. For example, there are 122 students in the cooperative programs this year. The total earnings of students based on the first twenty-six weeks of the 1967-68 school year were $56,162.91. Students had earned 57,992 hours in 101 training stations. Approximately 59 major skills had been acquired by students.

The program consists of the welcome address by a student, a response to the welcome by a local businessman, remarks by the superintendent or principal, the introduction of guests, a presentation of the aims and purposes of the cooperative program, and a description of the accomplishments of the students involved.

The banquet is financed by students. Each student today has to have a banquet and expects employer and spouse. School board members, administrators, members of the legislature, and other guests are also invited.

There have been many favorable comments on the banquet. Some persons have been impressed by the unified effort involving the five programs in which students have contributed on the number of students involved in this type of training.

Other Cooperative Efforts

Each student enrolled in a cooperative program is a member of his or her respective student organization. Office occupations students are members of the Future Business Leaders of America; distributive education students are members of the Distributive Education Clubs of America; the child care aides are members of the Future Homemakers of America; and students in agricultural occupational training are members of the Future Farmers of America.

While sharing talents and exchanging ideas about the common elements of the various programs, it was decided that there were several problems that could be approached effectively through a cooperative effort. Many of the teaching units are similar and are taught about the same time during the school year. This provides an opportunity to share resource persons, teaching plans, visual aids, and the (Continued on page 19)

THE AGRICULTURAL EDUCATION MAGAZINE

JULY, 1968
Encouraging and Fostering Innovation

GEORGE L. LUSTER, Teacher Education University of Kentucky

Change is the important point in this article. What are the factors in business and industry that bring about change? Capitalization, cost of production, shortage of workers, and need for volume are often listed. Outside the economic world a recognized emergency, a crisis, or a great need may force change and innovation.

MOTIVATION IS NECESSARY

But we in education do not often feel the needs which force innovation or change to the same extent as those in the business world. How often do we in agricultural education see educational problems as a crisis or extreme need? How can we effectively stimulate innovation? How can we use innovations in agricultural education to improve vocational programs?

We may feel that agricultural education needs change, but we also feel it is here to stay. While we will admit that we can always do better, we believe agricultural education has done a good job and is continuing to do so in the past. This belief does not tend to foster innovation. An intense desire to do better is at the heart of most innovations. Unless we have this desire, innovations are not likely to be brought about.

MEASURING EFFECTS

The effects of innovations in education are difficult to measure.

The effects of innovations in education are difficult to measure because their ultimate results should be desirable changes in the behavior of people. Changes in behavior — in attitudes, in understandings, and in skills and abilities — are not easy to measure and evaluate. In agricultural education, change in the behavior of students as a result of our teaching are difficult to ascertain. Then it is perhaps even more difficult to evaluate the results of innovation in terms of desirable changes in student behavior.

It should be emphasized that innovations are more likely to occur when people in agricultural education are intensely motivated to develop and try new ideas, and when these people have the ability and the know-how to evaluate the effects of such innovations.

ENCOURAGING INNOVATION

The following seems to be important in encouraging and fostering innovation:

• We must admit that we do not have all the answers and that whatever we do, as good as it may be, can be done better. The idea that we have arrived must be discarded. We live in a day of rapid change, and simply to remain the same will result in our being swept aside by the tide of change. We must continually search for better ways of doing things. Championship athletic teams do not depend upon the same players to win year after year. They are constantly trying to improve — to make the good even better. Unless we have the attitude that things can be improved, we will stop innovations before they have a chance to develop. We must have a favorable attitude toward innovation.

• A climate of freedom to act is essential. The administrator, manager, supervisor, or director who keeps a tight grip on everything that is done will not encourage innovation. Persons must work in an atmosphere of freedom if they are to be innovative.

To be innovative the held of the status quo must be broken.

Dr. George L. Luster

To: the security of the status quo must be discredited if innovations are to be fostered and encouraged. Innovations are severely limited by the failure to try something new because of insecurity. None of us is as secure and comfortable with the unfamiliar as with the familiar. But if innovations are to be fostered, we must let the insecurity of the unknown or new dominate our actions.

• Although freedom of action and a favorable attitude toward change must exist before many innovations will take place, these factors alone do not guarantee change. Those who give direction to and are concerned with leadership in programs in vocational agriculture must be willing to give time, counsel, and advice, and help to those concerned with innovation. More than a neutral, non-partisan attitude toward change is needed. Support may be required through the allocation of funds, the providing of facilities and equipment, and the guidance of staff and teacher time in order to get the job done.

• Innovations should be cooperatively planned and supported by all who are concerned with carrying them out. Without the cooperative and enthusiastic support of all persons involved, innovations do not have much chance of succeeding.

• Innovations should be encouraged only when they seem, in so far as possible, educationally and philosophically sound. The idea should seem good; if should show promise. However, it must be recognized that not all seemingly good and promising ideas succeed. None the less, it is very unlikely that an idea that appears unsound to the persons involved in trying it will succeed.

• Innovations should be planned and carried out by the most capable persons available. Only well-qualified and highly successful people should try innovations. It has been proven that creative or exceptional ability who have developed the things upon which progress is built.

• Do not accept the false idea that all change is good. Change itself is just as likely to be bad as good. To change in the absence of research, sound theory, logic, and study is to follow hunch, superstition, prejudice, or chance. Change for the sake of change is not likely to improve anything.

Innovations require creative thinking, the highest form of mental activity. A person is not innovative by just being different. Innovation requires creative effort — an effort to develop something that is new and better.

A PROCESS

It should be emphasized again that most worthwhile innovations, unless they come about by accident or chance, develop in stages. Innovation first begins as an idea. Then the objectives of the innovation are developed and defined. Finally a new and different way to attain the objectives is designed, tested, and evaluated. The innovation that results worthwhile will become more widespread. Finally after extensive use and evaluation, it becomes accepted or discarded standard procedure.

The drawings for this article were prepared by Tom Vannercer of the Instructional Materials Laboratory for Vocational Education, University of Kentucky.

George L. Luster

The Vocational Agriculture Teacher as a Team Member (Continued from page 6)

certification requirements as a reinvigorated vocational teacher.

The local labor market is increasingly glad to be a part of the high school program and offer without cost opportunities for occupational exploration and occupational experience, the latter at a cost to the student salary. More instruction on the program is given without cost, such as the butcher in the local market who teaches a senior boy in the program how to cut meat and the skills of salesmanship in presenting it to the customer.

The zeal of the students and parents for the program is illustrated by the veal freeze in 1967-68 for two sections of the junior-senior class in 'Occupational Outlook in Occupations' due to larger numbers of students electing to enroll in the program. Although there is no empirical evidence indicating reduction in the number of dropouts, there is agreement among school administrators and the team of teachers that many potential dropouts are still in the program. Also, the junior year selection of occupations has been realistic in that very few senior students have needed to change occupations during their senior year experience program.

VALID PRINCIPLES

The same valid principles of superior vocational agriculture brings about desirable results in all vocational education. Technically, a successful program of vocational agriculture should be encouraged to share these principles of vocational agriculture to enlarge the program to include not only those boys and girls interested in agricultural occupations but those who have an interest and who can profit from vocational education for any worthwhile occupation.

JULY, 1968

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An Instructional Program in Buildings and Grounds Maintenance

ROBERT W. WALKER, Teacher Education
University of Illinois

KENNETH L. CHERRY, Agricultural Occupations Instructor
Hollidayburg Area High School, Pennsylvania

The Hollidayburg Area High School, a Pennsylvania suburban school with a large enrollment in agriculture, has expanded the curriculum in agricultural education to include a new two-year course of study designed to prepare students for the occupations in grounds and buildings maintenance.

The new course is a popular one with tenth-grade boys when they choose courses for their last two years of high school. The 1960-61 class of 20 students was selected from 54 boys who desired to enroll in the grounds and buildings maintenance course.

A Pilot Study

The new curriculum is the result of a pilot study initiated by the Hollidayburg School District and financed in part by the Division of Vocational-Technical Education, Pennsylvania Department of Public Instruction. The primary concern of the study was to focus on an emerging agriculturally related occupation and develop a course of study specifically designed to prepare boys who desire to enter the occupation or a closely related occupation.

The student who is enrolled in the study was supervisor of grounds and buildings maintenance at Hollidayburg Area High School.

Robert W. Walker

At the time the pilot study described in this article was started, Dr. Robert W. Walker was a teacher of agriculture and Chairman of the Division of Occupational Education, Hollidayburg Area High School, Pennsylvania. Mr. Kenneth L. Cherry is currently a teacher of agriculture and Vocational Coordinator at Hollidayburg Area High School.

Kenneth L. Cherry

In short, the course of study provided instruction in skills needed by students who choose either the agricultural (sciences, technical, or custodial) field. Each student has an opportunity to choose a maintenance job compatible with his interest and capability.

Why should the agricultural department offer a course to train superintendents of grounds and buildings maintenance? Primarily because the position and related positions do exist, are in short supply, and very few educational institutions are doing anything about the need. Because of the grounds phase of the instructional program, the position should be classified as a related agricultural occupation.

Staff and Facilities

The agricultural department at Hollidayburg employs two full-time teachers. Both men have a full teaching load with the regular programs. The pilot study required that an additional teacher be hired to release the department chairman to spend three-fourths of his time on the project and one-fourth of his time serving as chairman of the Division of Occupational Education.

Members of the work committee were educators and lay people with a wide variety of professional and vocational competencies in the occupational areas of the study.

The agricultural department was contacted monthly in three-hour sessions and were compensated for their time and mileage. The work committee was divided into three groups: supervisory, grounds, and buildings. Each group was assigned the task of determining the key skills and knowledge that should be taught in each area.

Course of Study

The major units making up the course content resulted from analyzing the work tasks of the supervisor of grounds and buildings. In addition to the three areas for which the advisory committee developed key knowledge and skills, several other areas were identified and included in the course of study. These units included building construction and renovation, basic mechanical skills, construction of individual projects, and vocational and educational planning.

Work Experience

At the end of the first year the students were placed at a training station for a six-week summer work experience. The work experience training stations, which were located in the spring prior to the summer placement, were one-week in length. Forty-five administrative areas were located and the person in charge of maintenance in each was interviewed. Twenty-five administrative areas were willing to cooperate with the school in assisting with the course of maintenance training. Each boy had an opportunity to select the training station that was compatible with his interest and capability.

Part of Regular Program

Now the maintenance course is a part of the regular curriculum in vocational agriculture and a new class of 20 students was selected for the 1967-68 school year. An attempt was made to select boys interested in maintenance of grounds and buildings who possessed a high interest and aptitude for mechanics. Hopefully, the boys will benefit more from the course of instruction and acquire the key knowledge and skills that will classify all participants of the course as first-rate grounds and buildings maintenance personnel.

Most of the instructional content was not new to the teacher of agriculture. Resource specialists were called upon to assist in teaching instructional areas not familiar to the teacher. Considerable free resource materials were available for instructional use. The school served as a laboratory for teaching about maintenance procedures. Students performed maintenance functions in and around the building.

Placement of Graduates

Upon the completion of the two-year course conducted as a pilot study, each student was counseled to determine his plans for the immediate future. Of the 15 boys completing the course, five are continuing their education (three in college and two in trade school); three entered the armed services; and seven accepted employment related to grounds and buildings maintenance.

The Agricultural Education Magazine

July, 1964
Cooperation in Vocational Education

JOHN W. STRUCK
State Director of Vocational Education
Harrisburg, Pennsylvania

Most of us do not have a hobby of looking behind us at the things that have happened in vocational education, with things changing as rapidly as they are, most of our energies are taken up with problems of the present and planning for the future.

A brief look at programs of just a few years ago will reveal that changes took place rather slowly. Money and facilities for new types of programs were relatively scarce, and the problems of administration and coordination were simplified in comparison to these facing teachers and administrators today.

THE CHANCE

Federal legislation prior to 1965 allotted funds to the states by vocational education which encouraged the development of programs in agricultural education, home economics, trades and industries, and other areas of vocational education. Act of 1963 changed this. Instead of encouraging each area of vocational education to develop programs separately, this legislation does just the opposite—it encourages cooperation among all areas of vocational education in the task of preparing people for the work force of today and tomorrow.

The new legislation encourages what is often referred to as occupational mix. In which skills of one area of vocational education are brought to bear upon the problems facing another. With the many changes that have taken place in occupations in the past few years, a great many of our training programs should include skills and knowledge needed as well as any of both vocational and general education.

For example: What agricultural training program should not involve the knowledge and skills of marketing and merchandising? Or the basic skills and knowledge of accounting and keeping of ledgers? And what areas of vocational education should not include knowledge and information about the various products which are to be distributed and sold?

This argues for the need that the coordination of various areas of vocational education is a very important need and a challenge for today's and tomorrow's programs. Considerable attention should be paid upon it.

NEW PROGRAMS IN AGRICULTURAL EDUCATION

All areas of vocational education have their critics as well as supporters. Agriculture is no exception. Critics of outstanding programs, outdated equipment, old methods, and living-in-the-past have been prevalent at vocational education programs from time to time.

Many of these criticisms come from those who generalize from one or two programs but who in fact do not really know the truth about how programs have improved, changed, and kept up to date.

For example, a recent study in Pennsylvania identified the number and kinds of agriculturally related occupations in the state and the number of trained workers needed for each. This resulted in our agricultural programs being brought up to date thereby providing training for present and future labor market needs. It was found that for every three persons needed in Pennsylvania in production agriculture, eight more were needed in related occupations. This kind of information has given our vocational education administration and teachers facts on which to base changes in programs and facilities.

It takes time to make changes and to see the results of changes through graduates who obtain employment. I am thoroughly convinced that criticism of programs of vocational education just have not taken a good, recent look at programs that are in operation or programs which are being developed.

CORPORATE EFFORTS

We must make more effort to coordinate the teaching abilities found in the various areas of vocational education. The coordination of the various areas of vocational education is an important problem and challenge.

Considering attention should be placed upon it.

"The coordination of the various areas of vocational education is an important problem and challenge. Considerable attention should be placed upon it."

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THE AGRICULTURAL EDUCATION MAGAZINE

JULY, 1968

Themes for Future Issues

August
Adul Education
September
Agricultural Education for Persons with Special Needs
October
Agricultural Education in City Schools
November
Supervision in Agricultural Education
December
Supervised Occupational Experiences in Agricultural Education
Food Handling Technology Programs in Vocational Agriculture

PHILIP G. STILES
Associate Professor of Poultry Science
and
W. HOWARD MARTIN, Teacher Education
University of Connecticut

Food handling technology is both the conglomeration of the food sciences plus the marketing specialization of the food business. Taken as a whole it represents one of the largest and oldest of man's enterprises. Yet, taken as an academic area, it is one of the youngest disciplines and has been only recently introduced in a few vocational schools. This is somewhat surprising since food retailers employed over 1,500,000 persons in 1967; food wholesalers employed 500,000; food processors employed 1,000,000; and another 2,000,000 worked in the food industry. A recent survey indicated that fewer than 100 vocational schools offered programs related to food handling technology. From ten to twenty positions are available for every person who graduates in this field.

Formal Training Needed

For the most part a void exists in the formal training in food handling acquired by most employes in the food industries. A recent study in Connecticut indicated that the average number of years of formal schooling completed by food store personnel was 11.5. The study also showed that the lack of necessary education and training was the greatest single obstacle to job advancement by food store employes.

Skills Needed for Advancement

The food trade demands that employes develop certain skills if they are to advance. Most cutters and bakers normally practice as apprentices before advancement into skilled positions. Produce, grocery, and from food managers must be knowledgeable of their products as well as being able merchandisers. Accounting and inventory skills are also requirements for advancement. Clerks and stockboys must be adept in pricing, shelf stocking, product control, and sanitation.

In food manufacturing, plant quality control technicians require vocational training if they are to assure the public that their products meet established standards. Production foreman, salaried, and warehouse workers must handle their products with skill and efficiency utilizing complex equipment and computerized methods.

Program of Instruction

The basic requirements taken by all students are also needed by food handling students. These establish the core around which applied and vocationally related courses may be added. Table 1 illustrates the relative need for both core and applied additional courses. Ratings having a value of (moderate need) or higher should be included in the curriculum in addition to the basic requirements. High ratings are given to merchandising, business management, sanitation, on-the-job training, food retailing, and food quality. These are the areas directly associated with product sales, profits, and consumer image. Thus they are areas of knowledge and skill development that managers seek when promoting personnel to more responsible positions. The vocational food handling student will have this background and will surpass those personnel lacking it.

Table 1
Areas of Instruction for Vocational Training in Food Handling

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Degree of Need Indicated by:</th>
<th>Food Store Managers</th>
<th>Other Food Store Personnel</th>
<th>Vocational Teachers</th>
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<td>General Education</td>
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<td>Mathematics</td>
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<td>Physics</td>
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<td>Business and Management</td>
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<td>Merchandising</td>
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<td>Business management</td>
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<td>Accounting and bookkeeping</td>
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<td>Marketing</td>
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<td>Secretarial skills</td>
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<td>Food Group</td>
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<td>3.03</td>
</tr>
<tr>
<td>Work Experience</td>
<td></td>
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</tr>
<tr>
<td>Placement before graduation</td>
<td></td>
<td>3.92</td>
<td>3.92</td>
<td>4.31</td>
</tr>
<tr>
<td>After graduation on-the-job training</td>
<td></td>
<td>4.79</td>
<td>4.59</td>
<td>4.11</td>
</tr>
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</table>

The program should include a means by which further study and class participation can be achieved after graduation. Evening classes, special devotion,Fermentations, occupational vacations, and visiting specialists are possibilities for accomplishing this training. School officials should be reminded of the slack season employment where such routes exist.

Vocational agriculture curricula may offer several areas basic to food handling technology. These include identification of fruit and vegetable varieties and their seasonal availability, meat cutting and grading, poultry and egg grading, quality control, and sanitation. Vocational agriculture teachers conducting a food handling program need to be well versed in these areas plus have a knowledge of horticulture, food preservation, and marketing. Discussions on food production, processing, and wholesaling fit well into the agricultural area.

NATIONAL SEMINAR
AGRICULTURAL OCCUPATIONS PROGRAM DEVELOPMENT IN AREA VOCATIONAL SCHOOLS

Purpose: To expedite the development of expanded and enriched programs of vocational agriculture through area schools with major emphasis at the high school level.

Program Emphasis: The following areas will be emphasized:
- A rationale for offering agriculture in the area vocational school.
- Articulating the area agriculture program with other educational programs.
- Choosing appropriate curricular and course offerings.
- Guidance of area school students, including placement and follow-up.
- Facilities and equipment needed.
- Qualification and selection of faculty members.
- Providing occupational experiences.
- Evaluation of programs.

Consultants will be available to make presentations and to meet with committees that will develop recommendations for each area of the program. A day will be spent in visiting three area schools that are in operation in Northwestern Ohio.

Date and Location: September 16-20, 1968, at Bowling Green State University, Bowling Green, Ohio

Participants: The State Supervisor of Vocational Agriculture in cooperation with the State Director and Head State Teacher Educator will nominate from four participating state area schools. Approximately one hundred persons will be selected from throughout the nation. Through a grant from the U.S. Office of Education to The Ohio State University, each participant will be supported to the extent of $75 for subsistence in addition to travel being paid on the basis of a round trip, air tourist, tax exempt fare.

For Additional Information: Additional information concerning the Seminar may be secured from:
Dr. Ralph E. Bender, Project Director
The Ohio State University
Department of Agricultural Education
2120 Fyffe Road
Columbus, Ohio 43210

The AGRICULTURAL EDUCATION MAGAZINE
An Experimental Program — COOPERATIVE VOCATIONAL EDUCATION

C. DUANE PATTON and LOWELL F. HILLEN
Central High School
Champaign, Illinois

Numerous authorities in education and social science throughout the United States consider beneficial occupational experience to be socially meaningful, regardless of the kind of task a student performs. This idea is the focal point of an experimental cooperative vocational program initiated at Central High School, Champaign, Illinois.

COOPERATIVE VOCATIONAL EDUCATION


OPERATION OF THE COOPERATIVE PROGRAM

At the beginning of the program we three years ago, the staff agreed that it was paramount that the program be flexible in the use of student time and that assignments and activities be based on individual needs, interests, and abilities of students. These principles were difficult to implement due to the traditional orientation of the staff. Each of the staff had several years of experience in their area of vocational education. The colleges from which the staff had graduated had given lip service to flexible pupil planning but in fact called for lock step instruction in each particular area of vocational education. Students in the cooperative vocational program are still grouped, but in a different manner, according to vocational areas.

Team Teaching

Team teaching in the cooperative vocational education program is becoming more relevant and effective. We are not as concerned about aversion to class meetings as those students who anticipate some type of post-high school education. The team teaching approach makes available to all a greater depth in experience in a shorter period of time.

Professional Growth of Staff

To assist the staff in professional growth, a one-hour staff meeting is held each week. This in-service teacher education program deals primarily with the most immediate problems. Consideration is given to techniques which might facilitate teaching and a candid look is taken of the current program and its future development. From time to time other staff members in the school district and persons in the community are brought in to discuss special topics. A value of the in-service teacher education program is that it brings teachers face-to-face in considering problems and presents a better understanding of the total field of vocational education as well as better staff relationships.

C. Duane Patton is Chairman of the Cooperative Vocational Education Program at Central High School, Champaign, Illinois. Lowell F. Hillen is the Agricultural Occupations Instructor at Central High School and is the teacher-coordinator for agriculture on the Cooperative Vocational Education Program.

The original concept called for the team of teachers to be made up of the vocational staff regularly assigned to cooperative education. We are finding that this division of the duties of the staff. We have successfully coordinated the involvement of persons in physical education, English, and guidance to a much greater degree than is usually found in traditional vocational courses.

Utilization of services of the school's psychologists is more prevalent than at the beginning of the program. Our experience shows that the less experienced coordinators attempt to "solve" all students with their own "special understanding and professional" skill rather than calling in a specialist from some other service in the school system. The more experienced coordinators are realistic enough to know that they are less likely to fail in producing a well trained worker if they can enlist as many services as possible. The team teaching approach

(Continued on page 19)
A New Term: Agrarian Occupations

Surely the public image of agriculture has been influenced by the research of recent months. A changing image among us, for example, in conversations with businessmen. However, we also see much distress and doubt. Therefore we still have a distance to go. Perhaps we can yet improve the direction of change just a bit.

The general feeling might be described as an awareness that agriculture may be more important than has been realized. But there is also the feeling that no one is presenting information to define the importance of agriculture. The public is aware of the fact but not of the degree. Those of us who are in contact with the field are aware of the degree.

Recent studies have reported a definite increase in off-farm occupations, especially those involving contact with the public, and have indicated potential for managerial data. These data have come from businessmen and sometimes from workers. This research has had some tendency to upgrade the prestige of the field. It has to some extent stirred interest among students and prospective employers.

Multiple Skills and Positions

One difficulty of the research efforts in presenting the importance of agriculture has been the confusion as to why everyone should consider the field. It is sufficient to classify a job as agricultural. A recent Idaho study found evidence that people have a general idea of what the profession is, not the vocational practice, and that they are not very much to the point when identifying agricultural occupations. Although the study recognized and categorized three different degrees of relationship to occupations in agriculture, it revealed that the important fact was agricultural relation not the specific extent. Employers changed their requirements as to extent of relationship needed depending on the availability of workers.

Significantly, the Idaho study indicated shortages of agricultural workers needed because of business or communications skills and of sales personnel with agricultural background. The point of this has not been stressed in the literature. The fact of dual skills and functions is not apparent to the public.

Information Gap

Even more significant is the problem hidden behind this. Persons working in occupations with some relationship to agriculture have the responsibility for the image of the business enterprise in addition to the responsibility of performing tasks. This gives perspective to the great shortage of workers who have ambitions for a permanent career in agricultural fields with a supervisory or management potential. In fact, the shortage of personnel with qualifications for advancement into management is becoming acute. Such a shortage in a field of relatively good advancement and pay opportunities is clearly evident of the information gap and leads to the conclusion that agricultural employment needs to be more strongly developed and publicized.

Occupational Emphasis

Another significant result of the Idaho study is the expressed belief of employers that there should be more emphasis on trade-school curricula and a return to more expression of respect for careers in skilled fields. The evidence suggests a need for training programs which cross two or more vocational fields and which extend to post-high school levels.

A New Term

The foregoing discussion is perhaps brought together more effectively, and at the same time, to a new term. The author has found it appropriate to include not only agricultural off-farm occupations, but all occupations in any degree agriculturally related, under the term "agrarian" activities or occupations. In concentrating on these activities and emphasizing this term promotes a different image. Many of the occupations identified in this study are in the technical category and are not included in the census data. These incidents and other agricultural occupations are included in the census reports. This is to say that the data are included in the data are included in the census reports. This is to say that off-farm workers are included in seven of the ten "non-farm" categories. Idaho census reports provide a detailed breakdown from which a listing of agrarian workers among the categories listed as technical, managers, clerical, sales, operations, service workers, and laborers. Based on 100 on-farm workers in 1950, we have only approximately the following employment data including estimates for 1970:

Workers
1950 1960 1970
On-farm agriculture 70 75 85
Off-farm agriculture 20 60 65
Total agricultural occupations 100 100 100
Supervisory agriculture 100 100 200
Total agrarian business 250 200 350

Translated into more general terms, one can thus say that the number of persons in agrarian occupations is probably at least an additional 75 percent of those described as agrarian in the census. Furthermore, agrarian occupations are increasing. The change in Idaho between 1950 and 1960 being approximately a 75 percent increase.

Census Data Inadequate

A very important factor affecting the image of agriculture is the industrial reports largely based on Bureau of the Census data. Most of it all of the off-farm workers are lost within other categories in the census report. This is to say that off-farm workers are included in seven of the ten "non-farm" categories. Idaho census reports.

Robert W. Richman
Assistant Director
Office of the State Occupational Research Unit, University of Idaho, Moscow

A Cooperative Banquet Aids an Unified Vocational Education Program

(Continued from page 17)

planning of a cooperative employer-employee banquet. Some of the teaching units that the departments have been required to plan for student employment; legal requirements for employment; applying for a job; planning for careers; personal hygiene; salesmanship; maintaining good relations with employer, co-workers, and customers; social security; workmen's compensation; and leadership development.

Team Teaching

While definite plans have not been made for team teaching, there are many possibilities for this innovation on both a small-group and collaborative group bases. Students would be divided into groups of four or five, each group given an opportunity to explore the different areas of training while having the advantage of the knowledge and skills of five different instructors.

Norman High School is in various stages of planning which involves educational innovation in team teaching and modular scheduling. Each department or subject unit is being asked to participate in these innovations to determine the merits of such planning. The feasibility of team teaching between the vocational agriculture and other courses such as mechanical drawing, industrial arts, and electrical engineering is being explored. There is a trend in Oklahoma toward unification in vocational and general education and a desire that the planned general removal of all areas of vocational and technical education during the summer conference in 1966.

Summary

It should be stated in summary that the vocational and technical education programs at Norman High School have benefited from the cooperative banquet. Vocational teachers and school administrators are convinced of the efficiency and desirability of more collective occupational programs. Students develop more realistic information by interacting with other students who are preparing for different occupational programs. This type of activity results in less anxiety or less effective work effort which are non-splicing and focused on student occupational needs.

A Cooperative Vocational Education Program (Continued from page 17)

A training station has been correctly interpreted to the businessmen prior to placement and an unfortunate situation developed for the business man in general. Businessmen have generally understood the problem. Experiences indicate that each time a student is placed, there is probably a positive association and more school contacts result with the business. Business-for-student coordinator works with each student.

Student Organization

One of the strong points of the agricultural occupations instructor in his role of teacher-coordinator in the cooperative vocational education program is that of understanding the organization of student activities, particularly the驸e-occupational education phase of the program.

In an effort to offer an opportunity for more participation in activities similar to the FFA, a Cooperative Vocational Council was formed at the school. This council is similar in name only and the student organizer is concerned with the vocational education students in the school.

EVALUATION OF THE PROGRAM

An in-depth evaluative study of the cooperative vocational education program has been completed. This evaluation of the program has been analyzed by the local administrative staff, the business committee, the research coordinating unit of the Illinois Department of Vocational Education, and the central office.

We find that we have been able to place any student who expresses a desire or potential at a high level of competency. There have been no students whom we have been unable to place. There have been a few students who have dropped the program because they were unhappy with the training. This is far more likely that a change of training program was made.

There has been a tendency for the traditional vocational programs not to lose their identity. This appears necessitated by the one-time development of the program into the experiment to operate.

Cooperation with the State Conservation Division

Aids in Conservation Education

ANDY SUESS, Vocational Agriculture Instructor
Pittsville, Wisconsin

A small Central Wisconsin school district is getting the pace in conservation education. The heart of the conservation education program is Pittsville School District, a 140 acre, well-developed school forest complete with a man-made pond. School forests in Wisconsin are not uncommon but Pittsville takes the lead in the extraordinary use of their facility.

Instruction Manual

To make the most of their "outdoor classroom," officials prepared an original instruction manual designed to teach the basic subject of forestry and conservation. The manual includes material corresponding to the seven major demonstration areas of the forest. The manual was prepared by the local forester of the State Conservation Division and the vocational agriculture instructor at Pittsville High School, along with other members of the committee that administers the operations of the forest. The manual also contains technical pamphlets and materials from state and federal conservation agencies.

Cost of the manual was borne by the school district, and there is no charge to students for its use. A plastic-covered loose-leaf binder was used so additional materials could be added easily as additions are made to the forest.

Demonstration Areas

The demonstration area in the forest are used to show phenomena as the effects of diseases on various tree species, planning techniques, particular characteristics of the area type tree species, and the relation of trees and soil to wildlife and aquatic life. The crescent-shaped pond was built last summer to supplement the demonstration areas, specifically in the study of aquatic plans.

Vocational agriculture students have assisted in developing the school forest. In addition to planting trees to supplement the natural hardwood stand, trees have been cleared, zones brush-cut, and extensive work has been carried out to prepare the demonstration areas. Seating is provided in some of these areas where students and their instructor can learn first-hand about conservation. Conservation in this atmosphere is seen and felt as well as heard to make a lasting impression in the minds of the students.

The Future

In the summer of 1966, a well will be drilled and the shoreline of the pond will be further developed for study convenience. More work will be done on the trails and roads and possibly some campers will be cleared. The district allows other educational and conservation groups to use the forest, but the area is not open to the public.

"Below" this sign designates the Pittsville School District Forest. The forest occupies 140 acres of managed woodland.

"Above" Crescent Lake, a man-made body of water within the school forest, provides scenery as well as a study site for students. This man-made body of water has been stocked with fish on which winter survival records are kept and growth rates studied.

Dr. Gerald R. Fuller, Assistant Professor of Vocational and Technical Education at the University of Illinois, assumes work as Special Editor for Book Reviews with this issue. Dr. Fuller replaces Dr. Raymond M. Clark of Michigan State University who has served as Special Editor for Book Reviews since July, 1962.

Dr. Fuller has been a member of the staff of the Division of Agricultural Education at the University of Illinois since 1962. He received his B. S., M. Ed., and D. Ed. degrees from Cornell University. Dr. Fuller taught agriculture in high schools at Lisbon and Philadelphia, New York. He was a member of the staff at Cornell University from 1960 to 1962 where he served as Instructional Materials Specialist (part-time) in agricultural education.

Dr. Fuller is author of the book, Education for Agricultural Occupations. At the University of Illinois he is also a member of the Rural Educational Development Laboratory staff and is concentrating on the problems of post-secondary vocational-technical education. He is presently coordinator of the U.S. Office of Education funded project "Development of Human Resources through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas."

ALL ABOUT SMALL GAS ENGINES by Jud Purvis, Home-
wood, Ill.; The Goodheart-Willcox Company, Inc., 1965, 394 pp. $4.50
(School price $3.50)

"All About Small Gas Engines" tells and illustrates how small two-cycle and four-cycle engines are constructed, how they operate, what goes wrong, and how to service and repair them. This book is written as a basic reference for those who desire to learn about automobile engines and much of the basis information contained in the book is applicable to automobile engines. As pointed out by the author, working with small gas engines such as are used on lawnmowers, chainsaws, power tools, and the like requires little shop space and a minimum amount of tools and equipment. Once the student has mastered basic engine fundamentals he has an interest in learning the automotive service business, he then can go on to additional study pertaining to automotive units.

The author and publisher have drawn liberally on their successful experience with "Motor Service's Auto-

motive Encyclopedia." The publication is well illustrated and written in language that high school students can understand. This book should be a valuable addition to the automotive mechanics library and be useful in classes dealing with small engine sub-
ject matter.

Mr. Purvis is Editorial Consultant, Motor Service Magazine, and a Member of the Society of Automotive Engineers.

Elaine S. Dinsmore

grey E. Tornow

Michigan State University


The recognition that vocational and technical education in agriculture includes the preparation of youth and adults for the nonfarm agricultural occupations has created the need for instruction in the operation and management of small agricultural-oriented nonfarm firms. These two publications, while not specifically oriented toward agricultural businesses, treat the important aspects of owning and operating small farms in a manner which makes it easy for the student to relate the majority of the content to an agricultural business. In several cases, reference books dealing with agricultural-oriented farms are included in the presentation of the subject matter.

The authors state that the purpose of the text-workbooks is to introduce students to the major problems that they will meet if they ever plan to start a business venture of their own. The text-workbooks do a good job in introducing students to the problems of managing a small business.

Each text-workbook is divided into logical and interconnected sections with each unit being subdivided into teachable topics. The units cover such areas as small business organization, location, facilities, finances, record keeping, merchandising, law, personal relations and aids to the small business man. An instructor's guide and student test packet are available for each text-workbook.

These workbook-type publications appear to be suitable for use as one of the teaching aids for introductory courses at the high school level and possibly for introductory units at the junior college level. They would need to be supplemented for more advanced, in-depth study. The instructor's guide is essential if the text-books are used.

Mr. William D. Hailer, Jr. is the Supervisor of Distributive Education, Bureau of Business and Distributive Education, Albany, New York and Mr. Raymond T. Hub bard is Assistant Professor of Business Administration, Geneseo Community College, Batavia, New York.

Dr. Gerald R. Fuller

University of Illinois
HOW DO YOUR STUDENTS SELECT AN AGRICULTURAL SPECIALTY?

WILLIAM H. HAMILTON, Teacher Education
Purdue University

How do you help students select an area of agricultural specialization? Do you have an objective method to aid the student in his assessment? Such an important question should not be left to chance and a hope for the best.

Interest inventories, test results, and other information are widely used in similar guidance situations but the problem still exists that most of the widely used interest inventories deal with agriculture as a single field rather than as a series of specialized fields with differences in qualifications and interest patterns of the people successfully employed in each of these fields.

Interest Scale

The author recently completed a research project to develop an "Agricultural Occupations Interest Scale." The scale was designed to meet this particular need of identifying the extent to which high school students' interest patterns most closely match those of successful people in one of the specialized agricultural fields.

Keys were developed for the five specialized fields of production agriculture, ornamental horticulture, agricultural business, agricultural mechanization, and conservation. The keys were based on the ratings obtained from 203 men successfully employed in production agriculture, 99 in ornamental horticulture, 147 in agricultural business, 109 in agricultural mechanization, and 94 in conservation occupations.

Copies of the "Agricultural Occupations Interest Scale" and the scoring keys are available from Dr. William H. Hamilton, Department of Education, Purdue University, Lafayette, Indiana 47907.

The Agricultural Occupations Interest Scale is recommended for trial use and with the recognition of its experimenter status. Additional research is planned to improve the instrument to validate the instrument, to measure its reliability.

Figure 1

<table>
<thead>
<tr>
<th>Grade</th>
<th>Age</th>
<th>Sex</th>
<th>M</th>
<th>F</th>
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<tr>
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<td>11</td>
<td>12</td>
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</table>

INSTRUCTIONS: Please mark the following items indicating your first impression of how well you like the activity described by the item or circle the "D" if you dislike the activity. Circle the "U" only if you cannot decide whether or not you like the item.

1. Deliver supplies such as feed to farmer
2. Plant bale pasture
3. Repair machinery in the field
4. Sell farm machinery as a dealership
5. Be a foreman in a florist shop
6. Raise heifers
7. Sell dairy calves
8. Weigh grain and compute the number of bushels
9. Port H. PREFERENCES
10. Each of the following pain, circle the "M" or "F" in front of the scale.
11. A self fertilizer for a farm crop
12. Test the soil for fertilizer needs
13. Repair a farm tractor
14. Operate the tractor on the farm
15. Work in a garden store
16. Work on the farm
17. Own a floral shop
18. Own a farm service business

Scoring

The scale makes use of 100 items of two types: items the respondent reacts to with a like, undecided, or dislike response and items requiring a forced choice of a preferred activity. Each item of the first type is intended to represent a single activity or concept with the forced choice items requiring a choice between two activities or concepts. A sample of each type is presented in Figure 1.

Scoring, when accomplished by hand, requires about seven minutes per person. Hand scoring consists of assigning answer position values to respondents for each scale. Scoring keys are available for the production agriculture scale, ornamental horticulture scale, agricultural business scale, agricultural mechanization scale, and conservation scale.

Evaluate Production Practices

WILLIAM W. STEWART
Vocational Agriculture Instructor
Maconaquah, Iowa

One of the most difficult, yet vital aspects of teaching is to evaluate effectively learning activities. We are told that two essentials of the process are validity and reliability. We know also that instruments of evaluation must be "workable." I know of no other enterprise which lends itself to the "doing" phase of our program, and to subsequent evaluation, as does the corn enterprise. The nature of the crop is such that many new and old skills can be updated. A number of these skills lend themselves to study and practice.

Land Laboratory

Our school is fortunate in having fourteen acres of land within two minutes of our classroom door. This provides an excellent opportunity to coordinate the classroom study and field experience. It is not necessary for each student to have a corn field that is large however. As an outgrowth of this opportunity, our Crop and Soil Science club developed an instrument for evaluating corn growing performance. The instrument may have application throughout the country, since corn is grown in every state. The approach is readily adapted to all corn and livestock enterprises. We use the instrument to evaluate the corn enterprise conducted by students on the school's land and encourage students to use it on the home farm.

Use of the Form

Corn varieties vary greatly in their profit-making ability. We do not feel that variety comparisons on a scale such as ours would be valid, yet variety selection and variety comparisons on the home farm are not only valid but essential for making effective choice of varieties, we shall take precedence over "number of wagon loads" hauled from the field. The form is not intended to be complete. It is intended only for beginners, but it has stimulated thought, discussion, and action to a greater degree than any other technique. If we are "doing to learn," this instrument is worth consideration for possible adoption in your teaching.

Crop and Return

<table>
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<th>Crop</th>
<th>One Acre Cost</th>
<th>Our Farm</th>
<th>One Acre Cost</th>
<th>Our Farm</th>
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Evaluating Production Practices

Form for Evaluating Corn Production Practices

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<th>Cost</th>
<th>Return</th>
<th>Note</th>
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AGRICULTURAL EDUCATION MAGAZINE ISSUES NEEDED

The Department of Agricultural and Extension Education, University of Maryland, is attempting to bring its collection of The Agricultural Education Magazine up to date and is lacking several issues. They are:

September, 1957
December, 1963
February, 1963
January 1964
December, 1966
December, 1966
July, 1965
February, 1967
November, 1963

If anyone has any of these issues which he does not need, we would appreciate receiving a copy. We will be glad to pay for them at the standard rate charged for back issues.
Agricultural Education

August, 1968

Stories in Pi
GILBERT S. GUILER
Ohio State University

Agriculture has become a vast and complex industry, employing many persons in agriculturally related occupations at skilled, technical, and professional levels. Dean Marcus (right), dairy science student at Clemson University, is shown in his instructor's classroom and operating a high temperature pasteurization equipment. (Photo by Wilber McCarthy, State Department of Education, South Carolina)

NATIONAL VOCATIONAL EDUCATION ACT
GOLDEN ANNIVERSARY

The Golden Anniversary exhibit of vocational agriculture was developed by the Mobile County Vocational Agriculture Department in Alabama. The development of the past 50 years as shown in the exhibit attracted much attention. (Photo by Glover Pugh, Vocational Teacher, Alabama)

Featuring—
ADULT EDUCATION

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