Stories in Pictures

Gilbert & Guiler
Ohio State University

Vocational Agriculture instructor Don Elson of Kansas discussing wheat fertilizer demonstrations to high school students. The glass front boxes allow students to also observe root development of plant.

In the study of off-farm occupations, the Appling County, Georgia vocational agriculture department constructed a greenhouse for laboratory use in their classes of ornamental horticulture. Photo—Bryant.

Volume 39 March, 1967 Number 9

Agricultural . . . . . Education

James H. McKee, teacher of vocational agriculture at the Franklin, Tennessee High School explains the operation of a motor to two of his students. They are from left: Roger Hassel and Charles Patton.

Featuring—

Agricultural Mechanics

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The AGricultural EDucation Magazine

EDUCATIONAL PRESS ASSOCIATION OF AMERICA

Volume 39 March, 1967 Number 9

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Editorials

Learning Lab or Project Production?

Through the years "shopwork" has been a major phase of vocational agriculture. In most states, a well-equipped shop with a minimum amount of floor space was a standard requirement in establishing vocational agriculture in a school. The amount of class time spent in the shop varied greatly, largely depending upon the teacher. From the student standpoint, the shop was frequently his major interest, in fact, it is known that in some situations the major reason for enrolling in vocational agriculture was for the shopwork.

Like all other areas of vocational agriculture, the content of the program in the mechanics area has varied widely; not only because of the varying local needs, but as mechanization of the farm developed. Adjustments have generally been made through the years to meet both local and changing needs. However, there was frequently a lag in practice following recognized need. This lag was due in part to the difficulty of keeping equipment up-to-date and partly to the difficulty of the teacher keeping up-to-date. Much in-service education has been devoted to helping teachers develop the skills needed in teaching in the mechanics area. Herein lies one of the major difficulties and indicates one of the underlying dilemmas that has been with us all along and still continues.

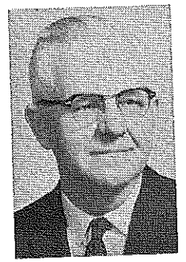
This is the dilemma of emphasis. Shall the major emphasis be upon skill development or in building needed projects and making needed repairs? As indicated above, the emphasis has shifted from time to time through the years, but the basic question still remains. Of course, we have made efforts (especially in speeches) to do both at the same time; that is, develop needed skills while building needed projects or making needed repairs on farm equipment. The present-day version of this idea is to repair the power lawn mower while learning the principles of the small gasoline engine.

Sometimes this ideal combination of developing needed skills while building needed projects for effective learning is indeed possible. However, the effective teacher develops the major purpose in terms of learning by the student. The test of this learning is the *change in the student,* not the resulting project. Put another away, the sensitive teacher wants to know what the project does to the boy more than what the boy does to the project. The exact evidence looked for and accepted as proof of this change in the student depends upon the philosophy of the teacher as to what is effective teaching and learning. For example, after teaching a unit on small gasoline engines, one teacher would be very pleased if a student could prove to him through test and demonstration that he really understood the principles of operation of a small gasoline engine. Another teacher would not be satisfied until the student had repaired, adjusted and maintained the gasoline engines at his home. In short, the second teacher is concerned about the carry-over of learning and the proof would be in putting the learning into practice outside of school.

Regardless of the philosophy of the teacher, it seems that learning by the student is the only valid reason for the mechanics area—or any other area. The building of a project, repair of equipment for home, school or FFA chapter should be secondary and done only if this is the most desirable approach to learning that is available. Mass production of cedar chests, picnic tables, mail boxes or anything else is a questionable use of regular class time in vocational agriculture. If such is a money-making project for the FFA chapter, then the work should be done by FFA volunteers on their own time. Even the repair of equipment from home should be included only when it fits into the planned learning situation for the student. Home needs may not be an adequate basis for developing a mechanics program; frequently the boy who has limited needs at home in the area of agricultural mechanics may be the boy who needs to develop his abilities.

So, the argument here is that the shop and the teaching in the agricultural mechanics area should be seen as a *Learning Laboratory,* rather than a repair shop for project production. In fact, some modern vocational agriculture programs are seeing the shop, greenhouse and other facilities fitting into specific teaching plans for specific courses, thus making up the *Agricultural Laboratory,* a continuing resource for effective teaching in vocational agriculture.

Cayce Scarborough



Cayce Scarborough

Theory & Practice

The theme for this month is Agricultural Mechanics. As Ed Henderson says in his article moving from "shop" to "Agricultural Mechanics" brings on some problems as well as opportunities. In trying to think about a 1967 Model program, a number of questions need answering. What is the major characteristic of a modern program in agricultural mechanics? What effect is the special mechanics teacher (with special interest and preparation) having on the content and results of the program? Maybe you already know the answers to these and similar questions dealing with direction for agricultural mechanics. If so, your response will be welcome.

Experience in the past few months with three regional seminars indicates that there is enough common ground and concern for people in different areas of vocational education to work together for more effective programs. In fact, it seems that if the high hopes embodied in the Vocational Education Act of 1963 are to be realized, we *must* develop programs involving more than one of the traditional areas. Alton Ice, our able AVA Director of Professional Relations, says that I overstated my point in a recent editorial on the *AVA Journal* policy about publishing articles involving Ag and DE. I have invited Alton to write a letter or article clarifying this matter.

It is good to see teachers joining in on discussing issues facing all of us in Agricultural Education. Problems of today, especially in matters dealing with direction, are too important to be left with directors, supervisors and professors!

(Continued, page 196)

Theory and Practice

(Continued from page 195)

Again, it was helpful to get suggestions from teachers through NVATA leaders on the Editing-Managing Board and others visiting with the Board in business sessions in Denver during AVA. There seems to be one thing on which we all agree—that our magazine should have more good articles from and for teachers. Maybe we have overdone the fact that we need a "polished" article. Would be nice to get the article ready to go to press. But that's not the main objective. *The idea is the thing!* The number 1 criterion for a "good" article for teachers is apparently an idea that works well for you and might be of interest to teachers elsewhere.

A key decision was made in Denver to help get these good ideas into the magazine. NVATA leaders agreed that each state association president would get one good account of a new and successful approach in more effective teaching from a teacher in his state and get to me during the next few months. Of course any teacher anywhere is always free to send an article to a Special Editor or directly to me.

WHERE THE ACTION IS! Did you see the attractive career poster by this title? It said, "If you enjoy physical activity you might investigate such careers as: Physical Education, Teacher, Athletic Coach, Dancer, Farmer, Fireman." Interesting to see *Farmer* listed in this category. The poster is by Chronicle Guidance Publications, Moravia, New York.

As noted several times in this column, *terminology*, always a problem in communication, becomes an obstacle to understanding new educational programs. Maybe some help is on the way with *PET—Panel on Educational Terminology*. Incidentally, acronyms, such as this one may become part of the problem if we continue to manufacture them at such a rapid rate.

I am pleased to announce that Bob Warmbrod, University of Illinois, is Editor-Elect of the *Agricultural Education*. He was named by the Editing-Managing Board at their meeting in Denver. A change in policy made this early election possible, rather than delaying until the 1967 meeting of the Board, thus giving Bob more time to get his Special Editors and get ready to take over as Editor in 1968. More on Bob later.

Guest Editorial—

Agricultural Mechanics In 1967—An Opinion

DONALD KABLER, Vo Ag Instructor, Halfway, Oregon

Is there a place for Farm Shop in the 1967 agriculture course of study and if there is how should it differ from those courses of 1937?

A good question with a variety of "It all depends"; or "How long has it been since he attended college"; or, "How does this type of activity fit into the new concepts of agricultural education?"

Any ramification of answers and provisos can be given with statistical data presented on a graduate level to prove either side of such a question.

It might be that the concept of farm mechanics of 1937 is just dressed up with a few more technical objectives but which essentially is built around specific basic skills of designing, figuring costs of materials, fabrication, testing and adapting, and finishing. It matters not if it is a new design for a four cylinder traction power plant or a design of a self-propelled bale picker.

While in 1937 we did not have first hand opportunities to fabricate a bale picker, and if one had done so, he would have been a mechanic far ahead of his time; however, regardless of the year, it would seem that machinery concepts will improve and someone along the line needs to be educated to assist in this unforeseeable outgrowth of Farm Shop Technology.

Methodology, need, background all have a part to play in the training of boys. It would seem that the rapid inovation of mechanical change in farm machinery would be an indication of things to come. It is wishful thinking that "farm shop" can give all of the basic information for a boy to choose any of the engineering fields, still, a start is essential and although some might expect skills and information to come from books, "Learning to do" still remains solid as a portion of an important motto.

With a long career in vocational agriculture and with a special emphasis on farm shop activities, I might be permitted to assume that any graduate level in an A. and M. atmosphere tends heavily towards well-grounded individuals with experience and know-how to work hand-in-hand with the engineering technology metered out daily to provide a young man, desired by many, and a credit to all concerned.

The basic skills of farm shop are important in 1967. After a visit in 1966 to several state fairs where this division of exhibits by FFA members was not up-to-par, administrators of several schools in Oregon, after counsultations are now requesting that farm shop skills be returned to the curriculum and that this important core of leadership training, F.F.A. activities, community services, cooperative development are to be an important part in the modern concepts of agriculture education for boys in high school and junior colleges.

With all of the new recommendations for course outlines, flexible scheduling, emphasis changing, experience and training of an instructor, new shop regulations, basic support, time schedules, etc, the fact still remains that training in designing, fabrication, adaptation, feasibility, demand, and costs, are essential and it has been shown that those who are in either production, processing, or services, are dependent upon individuals who can do.

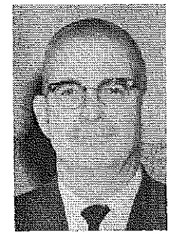
Experiences are an expression, a must, a goal in which each young man should have encouragement to excel.

Your communications, both pro and con, are most helpful. I am convinced that many of us share a common concern for having an effective professional journal. Differing views are good in arriving at our direction. My only regret is that we apparently have a large number in our profession who do not get the magazine and some who do get it apparently do not read it. For example, in securing evaluation and suggestions from teachers in one state one suggestion was that we should reduce the amount of advertising in the magazine. This is the only type of suggestion that is discouraging to me.

Best wishes,
Sincerely,
Cayce Scarborough

Safety Practices in Agricultural Education

CLARENCE J. ROGERS, Assistant Professor and Agricultural Engineer
University of Florida, Gainesville



Clarence Rogers

Safety in the Agricultural Education Program has always been of paramount importance. It is of even more importance today than formerly. At one time the major source of farm accidents was farm animals. With the rapid shift to mechanization, machinery is now the major cause of such accidents.

Vocational Agriculture shops are becoming better supplied with new and modern tools and equipment. With the advent of the Vocational Act of 1963, the scope of teaching agricultural mechanics was greatly broadened. This will necessitate a greater depth of teaching in the mechanics laboratory. Training, with the idea that the students will go into agriculturally related areas, involves new awareness of the need for an effective safety program.

Long Range Objectives

Safety instruction must be practical, not merely an attempt to prepare an individual to pass a course or to write a successful examination. It must teach the student to work safely in the home, on the farm, and in industry. It must teach him to recognize and respect dangerous conditions and to determine how to conduct himself under such conditions. It must be of a type that will command respect and carry over into life situations long after the course has been completed.

Talks on accidents and accident prevention, posters showing results of accidents, descriptive and illustrative pamphlets, competition between departments, and printed safety rules all have proven feasible and desirable. The surest way to prevent accidents, however, is to train students so that correct operations become automatic; and the worker, through habit as well as judgment, will achieve maximum safety.

Safety Practice

The time to train a student in the correct operations and safe practices for any job is when the learning process begins. Otherwise he will develop incorrect and unsafe habits which must be "unlearned." It is important that students observe every safety precaution, take every safety measure, and use every safety device at all times. There can be no excuse for deviation. It is not possible to fix a habit of safe practice if safety measures are observed one day and disregarded the next.

Just what is the teacher's responsibility for safety? The following points will act as a guide.

1. *To maintain safe working conditions and safe practices in his department, both in the shop and on the land laboratory.*
2. *To provide adequate safety instruction for his students and foster student cooperation in the shop and on the land laboratory.*
3. *To make recommendations to his school administrators for improving safety conditions.*
4. *To carry out all recommendations from his administrators for improving safe working conditions or giving safe instruction.*
5. *To keep up-to-date on the most modern and accepted safety practices.*
6. *To follow all safety rules and practices personally in order to set an example for his students.*

Who Is Responsible?

In this matter of safety, let's not forget that supervisors and other administrators also have some responsibilities. *First* they should promote the proper attitude toward safety at all levels *Secondly*, they should help establish and endorse a safety program in all agricultural education departments. *Third*, they should help implement safe working conditions including properly safeguarded equipment and elimination of all health hazards. *Fourth*, they should follow all local and state requirements governing safety in school shops and foster a close relationship between the school and the local, state, and national agencies which provide safety services to schools.

Start Early

The safety program should be started the first day a student is in the department. He should be acquainted with safety rules governing the department so he will know what is expected of him. He should be given a copy of the safety rules which he will read and sign, stating that he has read them and understands them. Then he should take the set of rules home so his parents can read them and also sign, stating that they have read them. The copy should be returned and filed in the teacher's file. Another copy should be given to the student for his notebook.

Instruction in safety should be started immediately and put into practice. One good way of involving students in safety is to appoint a student each day to act as safety engineer for the class. This could also be done on a weekly basis. He should have a check list of safety rules governing the class which he will fill out as he circulates among the class and watches for safety violations. For this program to work the teacher will have to back his safety engineer 100%.

Easy to Check

If you really want to know if your department is carrying out a good safety program, get a copy of the "National Standard Safety Inspection Check List for Vocational Agriculture,"* and give yourself an inspection. This is a very thorough list and would be a good guide in planning your program.

As stated before there are many ways of teaching and stressing safety, but the surest way to prevent accidents is to train students so that correct operation becomes automatic. In this way the student, through habit as well as judgement, will achieve maximum safety.

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* Prepared by the Joint Safety Committee of the American Vocational Association—National Safety Council.

Filling Informational Voids

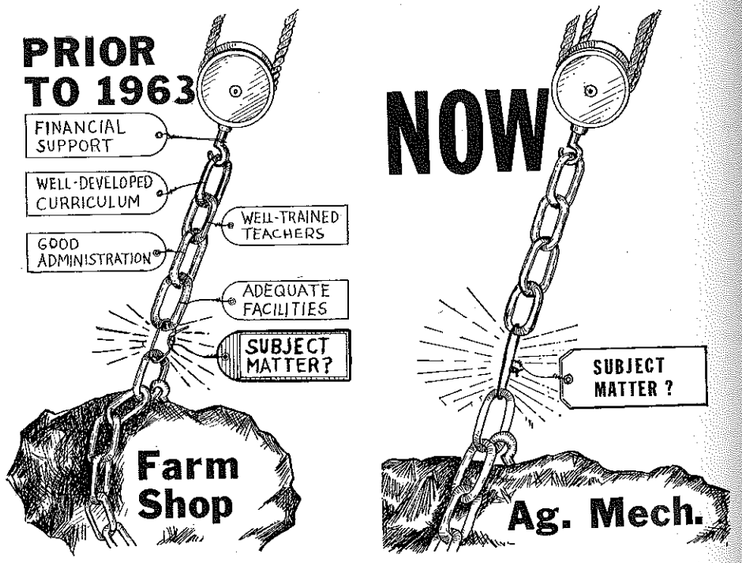
G. E. HENDERSON, Coordinator

American Association for Agricultural Engineering and Vocational Agriculture

G. E. Henderson

There is an old saying that a chain is only as strong as its weakest link. When vocational agriculture expanded from farm shop into agricultural mechanics, very few teachers and administrators realized how much of a subject matter weakness already existed. True, there is much information on most subjects, but it is widely scattered and difficult to organize into effective teaching material. Some of the information is in language that a teacher cannot interpret without expert help.

There is some evidence that key leaders in vocational agriculture are gradually becoming aware of the seriousness of this situation. This may be due to recent research findings. Several have reported the great need for well-prepared agricultural-mechanics subject matter.



(Illustration #1) During the "farm shop" era, well-developed subject matter was a weak link in the overall program.

(Illustration #2) As vocational agriculture enters the broad agricultural-mechanization field, strain on the subject-matter link intensifies.

Adding further to our difficulties is the rapid expansion of knowledge. Some authorities estimate that new knowledge is doubling each 8 years. At the same time knowledge is doubling, a substantial portion of existing information is becoming obsolete. Recently, a scientist stated, "A physicist's knowledge and competence acquired by graduation has a 'half-life' of 10 years, meaning that in 10 years half of what he knows at graduation will be obsolete."

If new information and obsolescence are major problems now, it is fairly safe to estimate that these problems will become worse before they become better.

The next logical question is, what can be done to meet this situation?

A Joint Effort to Meet a Need

Perhaps the most complete experience that exists anyplace is that of the American Association for Agricultural Engineering and Vocational Agriculture. The Association was organized for the purpose of preparing subject-matter for vocational agriculture in the agricultural mechanics field. When established in 1949, an estimate was made as to how fast a central office of this type could prepare material. It was believed then that one publication per month could be developed. This would have been possible if a writer had used only easily available facts, used no illustrations, made no particular attempt to check for accuracy, and confined the publication to relatively few pages. It soon became evident that participating states in the Association were not satisfied with that type of subject-matter production. What these states wanted was:

1. An *orderly presentation of facts* so that teachers would have little reorganizing to do before teaching.
2. *Complete information*, even though it meant a great deal of research on the part of the writer.
3. *Simplification* so that no matter how technical a subject, it would be simple enough for a high school student to understand.
4. *Adequate illustrations.* Few existing illustrations meet the yardstick of adequacy in supporting the written text. Consequently, new illustrations had to be developed.
5. *Checking by experts* throughout the country to make sure the information is accurate and factual.

These conditions slowed production from the anticipated one publication per month to an average of about 60 pages per year. Does this kind of subject-matter development pay?

There is no accurate quantitative answer to this question, but there are several very favorable indications. For example:

1. There is ample evidence that teachers have less fear of teaching a new subject if they feel their text is adequate.
2. Qualitative checks on comprehension have indicated substantial increases in speed of comprehension on the part of students.
3. Sales of teaching materials are expanding rapidly to states that are not participants in the Association, and sales to industry and foreign countries are also increasing.
4. The expressions of concern that publications are not being developed faster and on a much wider variety of subjects.

One Way to Speed Up

The latter point has been of concern to the Association Board of Directors—the subject-matter link is being subjected to greater stress. If publications are to be issued faster, quality would have to be sacrificed. After considerable thought, action was taken recently in hopes it would help relieve the stress problem. It was decided to work with industry and others to make available existing information in the form of "references." It is recognized that these do not meet our standards of development, but we hope they will help to partially strengthen the subject-matter link until there is time to completely develop them. "References" now being offered under this arrangement are ones developed initially by machinery manufacturers that are members of the Farm and Industrial Equipment Institute. They deal with tractor hydraulics, the tractor electrical system, tractor transmissions, and ball and roller bearings. These will ultimately be revised or incorporated into more adequate subject matter.

Adding further to the problem of subject-matter preparation is the constant up-dating of existing publications. If a publication is to remain satisfactory for teaching purposes, it must be up-dated before it reaches the "half-life" mentioned for the graduating physicist. This means that some publications require up-dating every 3 to 5 years.

At best, the preparation and up-dating of well-developed subject matter is a costly and time consuming job, but it appears to pay handsome dividends.

From Regional to National

It was with these conditions in mind that the 12-state regional association called the "Southern Association for Agricultural Engineering and Vocational Agriculture," in 1966, became the "American Association for Agricultural Engineering and Vocational Agriculture." Thus providing an opportunity for all 50 states to participate in helping meet this increasingly difficult subject matter assignment.

Publications as well as filmstrips presently available from the Association are listed below.

If you are interested in more information regarding these teaching materials, write:

Coordinator's Office
AAAE & VA
Agricultural Engineering Center
University of Georgia
Athens, Georgia 30601

TITLE PUBLICATIONS
Maint. the Home Lighting and Wiring System
Farm Electric Motors
Elec. Terms Their Meaning & Use
Planning Water Systems for Farm & Home
Planning Farm Fences
Building Farm Fences
Planning A Farm Shop Layout
Planning A Machinery Storage Layout
Planning Mach. Storage & Shop Struc.
Tractor Tune-Up & Service Guide
Select. & Storing Trac. Fuels & Lub.
Tractor Operation & Daily Care
Tractor Maint. Princ. & Proced.
Tractor Hydraulics
Tractor Transmissions
Tractor Elec. System
Field Mowers
Ball & Roller Bearings

TITLE FILMSTRIPS
Farm Electric Motors, Etc.
Elec. Terms Their Meaning & Use
How Farm Elec. Motors Start & Run
Planning Water Systems for Farm & Home
Planning Farm Fences
Building Farm Fences
Planning A Farm Shop Layout
Planning A Machinery Storage Layout
Planning Mach. Storage & Shop Struc.
Select. & Storing Trac. Fuels & Lub.
Tractor Operation & Daily Care

Thomas Stitt

Farm Mechanics Exhibits— Aid for the Teacher

Robert White

ROBERT H. WHITE, Retrieval Specialist
and
THOMAS R. STITT, Research Assistant
Center for Vocational and Technical Education
Ohio State University, Columbus, Ohio

A good farm mechanics project attractively displayed in an exhibit can provide several valuable benefits to the teacher and students. Regardless of whether the display is at the local, county, or state level, the benefits from this type of activity include:

1. Students are stimulated by the opportunity to compete with their peers.
2. Students are afforded an opportunity to receive awards for quality projects.
3. Tangible examples of a student's skill, knowledge, and ability acquired as a result of quality teaching can be presented to the parents, other teachers, school administrators, and the public.
4. Favorable attention can be attracted to this phase of the educational program and thus administrators and school patrons can see justification for maintaining or increasing facilities and support.
5. Potential vocational students may develop interest in vocational agriculture through observation of farm mechanics shop projects.
6. Students are motivated to learn the necessary basic skills so they can advance to individual projects.

As technological advances demand increased knowledge, skill and ability of the students and as competition in farm mechanics displays increases, there will be a continuing need to improve the quality of shop projects. The number and quality of exhibits are increasing at many state farm mechanics contests, as evidenced by observing the state contests in Ohio, New Mexico, and Kansas, to name but a few. Many recent technological developments have taken their place in school shops in recent years. TIG welders, sheet metal equipment, radial arm saws, surforn tools, and other pieces of equipment have appeared within the past decade and add to the wide range of skills the teacher must pass on to the student.

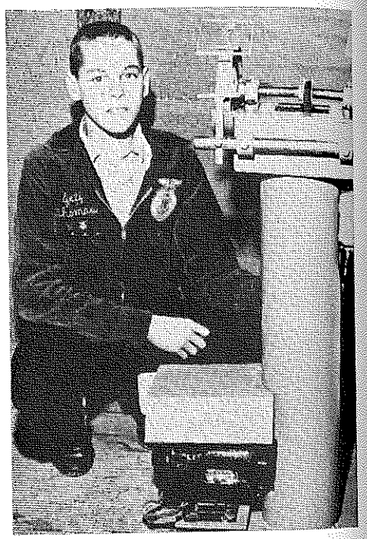
How Teach Skills?

A logical approach to the teaching of skills by means of individual shop project construction is needed which will enable each teacher to realize the maximum benefit from this type of learning activity. The writers have participated in farm mechanics contests as teachers of vocational agriculture, and more recently had the opportunity to judge the FFA Farm Mechanics Exhibit at the Ohio State Fair. From this vantage point it appeared that a checklist or set of guidelines could be developed which might aid in improving the quality of student's indivdual shop projects, and thereby increase the value of the educational experience. The following suggestions are offered for consideration by teachers planning to exhibit shop projects in any display.

1. *Enter appropriate articles in an exhibit.* If the contest is a farm mechanics contest, then the student should construct an article that is truly functional on the farm. Farm machinery, shop tools, and livestock equipment are types of projects that would be appropriate. Projects such as decorative furniture, while they may be excellent for teaching certain skills, could be misunderstood by viewers of a farm mechanics display.

2. *Enter projects that display several skills.* Although from the educational viewpoint it is true that almost any shop project will involve several skills, the items selected should present a variety of skills. The educational value of an entry may be enhanced by incorporating as many skills as possible, consistent with the ability of the student. On a metal project, for example, it may be possible and appropriate to include not only welding, but also brazing, sheet metal work, and other metalwork skills.

3. *Consider design prior to beginning construction of the project.* A sketch or drawing of the item will facilitate planning and assist in the elimination of errors while they still can be corrected with an eraser. Good plans can be included in the exhibit with the project, as they are in some states, and by means of photoduplication these can be available if requested by farmers or other interested persons. A drawing will allow the teacher an opportunity to identify and help the student prevent such mistakes



The shielded motor and belt, protective lens and tool rest of this grinder exemplifies the safety features which can be incorporated in the design and plans of a project.

as using nails where bolts would be more appropriate, welding on a part that may need to be replaced, or omitting an essential part. These mistakes can detract considerably from the appearance and the functional value of a project.

4. *Use proper materials for the project.* Careful attention to detail in plans including a bill of materials and cost before the project is started also contributes to the desired learning experience. The student should select materials that are neither too low in quality or strength, nor too high in quality and thus too expensive to be practical. Although inappropriate materials may not be as apparent to the casual observer as to a critical observer or judge, sound economic principles should be employed in the selection of materials. Examples of appropriate materials would be to use black pipe rather than galvanized pipe for a welded project, or to use nominal dimension lumber rather than expensive special order dimension lumber for a woodworking project. Each situation offers a unique and valuable educational opportunity for the student.

5. *Each project should display careful workmanship.* Unfortunately, a single mistake is often more noticeable than all of the other good work of the project. Each project entered in an exhibit represents the student, the FFA, the school, and the teacher, and careless work should be avoided at all stages of construction. A time schedule may help the student to avoid being rushed to finish the project. Careless use of a countersink, an electric sander, or any other tool can cause damage to the project which will overshadow the other good work the student has performed. Teach the student to be particularly careful during the final stages of construction and then select for exhibit only projects which reflect quality teaching and high quality work throughout.

6. *Select an appropriate finish for each article constructed.* Some departments use the same type and color of paint for all projects completed in that shop. While this certainly simplifies the problems of paint storage and clean-up in the shop the finish should also be a desirable educational experience. The instructor should help the students determine the proper type of paint or finish for each item, considering that item's intended use. Every project that is subject to outdoor use should certainly be finished to increase the life of that item. Attractive colors will help give the finished project an aesthetically pleasing appearance. An appropriate finish properly applied to a project will infer to observers as well as to judges that the item was carefully constructed and completed.

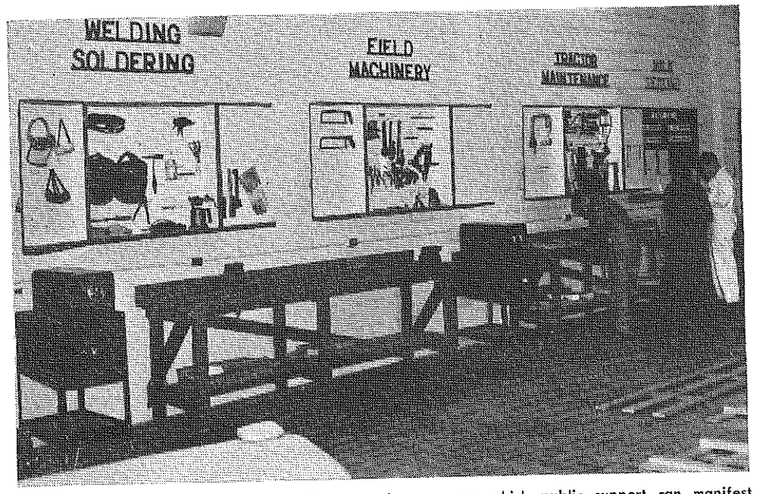
Summary

These points should help to improve the quality of any individual student shop project and thereby help to strengthen the total farm mechanics program of instruction. The primary purpose for individual shop projects is the development of the student's knowledge, skill, and ability in farm mechanics. The well planned, constructed, and finished project offers tangible evidence that the teaching objectives in farm mechanics are being fulfilled.

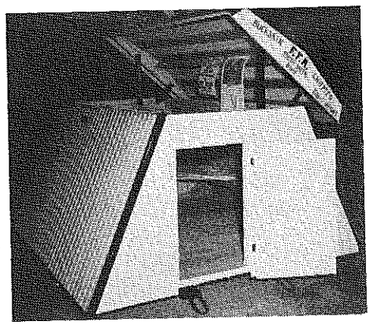
Even the best shop programs may occasionally have difficulty in creating sufficient recognition and support to be maintained in the school as other school programs clamor for facilities and financial support. This competition for resources is the same competition referred to by Golden, who stated:

> The time that is allotted for vocational education instruction is inversely proportional to the explosion of new knowledge and industrial and technical progress.[1]

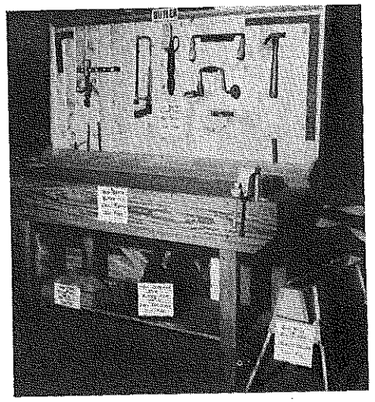
It is a well accepted principle in the business world that to sell your product you must display your wares. We could well borrow a page from the businessman's notebook, as some other high school programs have done, and display our wares. This will increase public recognition and facilitate public support. Public support may manifest itself in terms of financial support, greater security and freedom in teaching, or in any of a myriad of ways. Certainly this means of obtaining public support will help maintain an improved shop program which in turn will help you to continue to reach your teaching objectives.



Adequate space and facilities like these can be one way which public support can manifest itself for the department.



The greater number of skills and abilities used in the design and construction of a project like this portable farrowing house, will increase the educational value of the project.



The student should construct an article that is truly functional on the farm if it is to be exhibited in a Farm Mechanics Display.

[1] H. H. Golden, "Teaching Systems versus Projects," *Agricultural Education Magazine*, July 1966, p. 5.

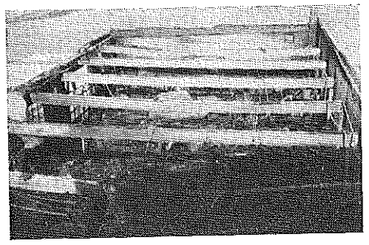
Fire Proves —

A Complete Inventory Is Important

JOHN W. DRISKILL, Vo Ag Instructor, Buffalo, Wyoming

I was suddenly awakened from a deep sleep at 1:00 A. M. on that spring morning of 1961. My wife shouted "Get up, the High School is on fire." At first I thought it was a student prank. School would be out in two weeks and students are pretty mischievous that time of the year. I pulled back the curtain and looked in the direction of the high school. There was a red glow in the sky and I knew at once that this was no prank.

I hurriedly dressed, jumped into my pickup, and drove to the school. On arriving, I found the fire to be centered in the Vocational Agriculture shop. The fire department was on the job. Despite their efforts through the remainder of the night, the Vo-Ag building was a complete loss although they were able to save the rest of the school building. What had been a fine, well equipped shop only four years old, was now a mass of twisted steel and rubble. (See photo.)



Started in Shop

Vo-Ag shops are quite susceptible to fires. The cause of the fire in my shop was never fully determined, but the finger pointed to the area where paint and paint brushes were stored.

I am not writing this article merely to tell about a fire but to assist those Vocational Agriculture instructors who in the future might go through this experience.

The Vo-Ag shop, classroom, and the contents of each were fully covered by insurance and were rebuilt during the summer, but much extra work on the part of my superintendent and myself was involved before this was accomplished.

Most of the work in straightening out the results of the fire in my department involved the "contents." That is a mighty big word when speaking of a Vo-Ag department. Insurance companies are very cooperative, but they want records as to the contents of a building before settling a claim.

We Had Records

I am very fortunate in working under a superintendent who wants records complete and up to date. A copy of my shop inventory was in his office and it was recent enough to satisfy the requirements of the insurance company.

With the thousands of items in a Vo-Ag department, it is doubtful if any inventory includes every single item. Such things as plant mounts, seed samples, FFA equipment, trophies, etc. are easy to miss. The amount of expendable supplies on hand at any one time is quite hard to determine.

A fire is bad enough, under any circumstances, and you never come out ahead regardless of the type of insurance that is carried. If you have a complete inventory it will help you a great deal.

Suggestions

We never know, regardless of the precautions taken, when a fire may strike. From my own experience, I would suggest you take the following precautions immediately:

1. Make certain that your shop and classroom inventory is complete and up to date. I would suggest that the inventory be taken in the fall to take care of new equipment purchased during the summer. Show the purchase price of each item. Place a value on every item as you *might have to do this someday.* Check the inventory and bring it up to date every year. Make two copies and store one of them in a fireproof vault.
2. Talk the Insurance Program over with your superintendent. Convince all concerned that it would be mighty costly to replace the tools and equipment without adequate insurance.
3. Check to see if your insurance covers the boy's projects that are in the shop. Ours did not and it was quite a loss to some of the boys.

And by the way, HAVE YOU CHECKED YOUR SHOP FOR FIRE HAZARDS LATELY?

Letters to the Editor

Dear Cayce:

I have threatened to do this a number of times but this is it!

I have thoroughly enjoyed your editorials in the Agricultural Education magazine. For me they offer some constructive criticism that provokes thought. Your analysis of some of our present day troubles and the way you lay it on the line meets with my heartiest approval.

Now I can stop censoring myself for not getting this off my chest sooner.

Sincerely,
Frank R. Johnston, Ex. Sec.
Arkansas Association, FFA

Frank, this is too nice, but I accept it just the same! Thanks, CCS

Dear Dr. Scarborough:

Seldom do I write letters to editors, but the "new look" in the professional publication for agricultural education that you manage prompts this brief note.

As an agricultural educator of some vintage and as an early subscriber to the "old" Agricultural Education Magazine, I find myself stimulated by not only the new format but by the evident change in content that I see in the current volume. That this evidence of new vitality in our profession pleases me very much, is an understatement! My congratulations to all of you who are making this professional publication a provocative contribution to agricultural education.

Sincerely yours,
Wesley P. Smith
State Director of
Vocational Education
State of California

Thanks for taking time to write and offer encouragement. We in AgEd can use some encouragement these days. Glad that your interest in us continues as you take on more responsibilities.—CCS

Portable Power Chain Saw Skills

PETER SKROCH, Vo Ag Instructor, Oconto Falls, Wisconsin

Peter Skroch

"Is there a place for teaching a unit on skills of operating and maintenance of power chain saws to agricultural students?" This and other similar questions have been confronting vocational agriculture instructors teaching agricultural mechanics to meet the needs of the future farmer.

A recent study on power tools and equipment used in agricultural mechanics instruction in Wisconsin was conducted by the writer in cooperation with Dr. Marvin Thompson, Agriculture Education Department, College of Agriculture, Wisconsin State University, River Falls, Wisconsin. This study showed an increase in number and variety of electrical and gasoline power tools used in agricultural mechanics instruction. The state-wide survey showed that 12% of the vocational agriculture departments were equipped with portable power chain saws and that 20% of the state's instructors indicated, in their opinion, that the chain saw is a desirable tool for teaching farm mechanics.

Chain Saws Popular

The popularity of chain saws may vary throughout the state depending on the needs of the farmers in a given area. Within the Oconto Falls school district, pulpwood harvest has been a common enterprise which, in part, accounts for the large number of chain saws in use. A local survey made within the vocational agriculture department indicated 55% of the students are on farms equipped with chain saws. Approximately 75% of the vocational agriculture students enrolled had chain saw experience without formal training in the use and maintenance of this equipment.

Safety Practices

The portable power chain saw, like many other farm power tools, is a dangerous machine to operate without proper knowledge and directions in safe handling. The National Safety Council outlines a unit on safe handling and instruction on chain saws. The publication, "Portable Power Chain Saws," Data Sheet 320, is an excellent resource for teaching saw handling and safety.

Vocational agriculture students of Oconto Falls, Wisconsin, are participating in a demonstration on bucking logs with portable power chain saws in their school forest. This is part of their instruction unit on handling power chain saws by their instructor, Peter Skroch.

Chain saw manufacturers provide an operators manual with each machine on safe handling and operating procedure, a primary source. Film and charts are available through these firms and their dealer distributors.

This is a partial list of excellent film and their source:

"Safety and Fuel, Maintenance of Chain Saws" by Homelite Chain Saw;

"Chain Saw Maintenance" by McCulloch Chain Saw;

"Sharpening and Maintenance of Chain and Bar" (film strip) by McCulloch Distributors.

Taught on Unit Basis

Farm power is taught at Oconto Falls on a unit basis during the senior year to vocational agriculture students. These units are distributed as follows:

a. Tractor maintenance and operation.
b. Small engines.
c. Farm electricity.

The small engines unit is subdivided into four areas as follows:

a. Safe handling and operation of chain saws.
b. Small engine maintenance.
c. Care and maintenance of chain and bar.
d. Demonstration of felling and bucking trees in the school forest.

If there is any truth in the old proverb, "Experience is the best teacher," perhaps the need for training skills should be broadened in the instruction of agricultural mechanics. In agricultural areas where chain saws are used extensively, the need for training special skills in chain saw maintenance and operation is greater. Each community must be evaluated to determine the needs for training mechanical skills.

The James F. Lincoln Arc Welding Foundation: Its Role in "Agricultural Mechanics for 1967"

CHARLES G. HERBRUCK,*

The James F. Lincoln Arc Welding Foundation
Cleveland, Ohio 44117

The School Shop Awards sponsored by The James F. Lincoln Arc Welding Foundation will play an active role in agricultural mechanics for 1967. The Foundation will be observing its sixteenth year of service to the nation's high schools with this program. The award presentation represents the ultimate in recognition of achievement to many students enrolled in the agriculture curriculum.

The thrill experienced by the awardee is paralleled only by his instructor's pride. The entire school system and community benefit, not only from the recognition received, but from the knowledge that one of their students was capable of earning an award in national competition.

The Process

Truly the award is earned, for the student must construct a useful project utilizing arc welding and describe every phase of this construction in a clearly written report. This report is then evaluated by a panel of judges consisting of teachers and state supervisors of education headed by Dr. E. E. Dreese, Chairman of the Foundation trustees. The Foundation has been and is a non-profit organization devoted exclusively to fostering knowledge to advance arc welding.

In its early days, the major use for arc welding was maintenance and repair. Electrodes were little more than fence wire. The arc, following the laws of nature, was inclined to pursue the path of least resistance which all too often was not the seam or crack to be repaired.

Background and Purpose

In spite of the difficulties inherent with primitive equipment and electrodes, James F. Lincoln foresaw, as early as the first World War, the great potential of arc welding as a more efficient means of joining metals together for production and construction. However, it is not easy to convince people to change their ways of doing things especially when the old way has been satisfactory while the new method is relatively unproven. Teachers, engineers and designers would have to be educated in the potentialities of welding and how best to use its advantages.

To accomplish these aims, the Board of Directors of The Lincoln Electric Company in 1936 established The James F. Lincoln Arc Welding Foundation. The deed of trust of the Foundation reads:

> "Founded to encourage and stimulate scientific interest in, and scientific study, research and education in respect of, the development of the arc welding industry through advance in the knowledge and design and practical application of the arc welding process."

Arc welding has played a feature role in agricultural education throughout the United States as evidenced by the number of agriculture students taking part in the annual Foundation Awards. Since the program's inception, 10,000 students from all fifty states have entered papers with 49% having received $150,000 in awards as well as national recognition. The public relations value to the agriculture program is immeasurable. The Foundation strives to constantly develop the awards program to closely integrate normal curriculum requirements of agricultural mechanics and project entries. The recommendations for an award winning entry are designed to enhance and enrich the vicarious experiences that are a natural part of an excellent agricultural program.

The opportunity to help young men develop personally, lie in the agriculture instructor's realm. The Foundation stands ready to aid in each of these areas with publications readily adaptable to each unique situation. Proper planning and safe, economical execution of each undertaking must be emphasized in agricultural mechanics.

Ag Occupations

The present emphasis toward agriculturally related vocations will open vast new horizons to the aggressive teacher. Skill development in arc welding becomes a by-product of agricultural mechanics. The final evaluation of the entire agricultural program depends upon the future accomplishments of each student. The Foundation is dedicated to an approach aimed toward achieving skill and general knowledge in the field of arc welding. Adequate dissemination of pertinent information in the field of arc welding is simplified for the agriculture instructor utilizing Foundation materials.

Materials Available

The educational materials available from the Foundation include audiovisual aids, textbooks and other teaching aids. In addition, other feasible aids adaptable to agricultural mechanics will be produced at the request of the many instructors in the field.

Send in your request and the Foundation will do everything possible to make "Agricultural Mechanics For 1967" an outstanding feature.

* This article was prepared for *Agricultural Education* by Mr. Herbruck at the request of the Editor because of the nationwide interest in the program.—CCS

Productive Projects for All

J. DAVID McCRACKEN, Vo Ag Instructor, Charles City, Iowa

One of the major problems of the Vocational Agriculture teacher is involving each new student in a supervised farming program that is of maximum educational value. The problem is not serious with the student from an excellent home farm situation nor with the student who has older brothers who have experienced outstanding project work. The major area of difficulty in my brief experience has been with the student in an urban situation or from a farm where the majority of family income is derived from off-farm employment.

Providing Opportunity

As more emphasis is placed on agribusiness instruction, we are finding a greater percentage of our students residing on sub-marginal farms developing an interest in agriculture as a realistic vocational goal. The challenge to the instructor is developing in this student a solid background of practical farm experience prior to his agricultural business employment training during his senior year. Some departments have approached this problem by organizing cooperative business ventures in horticultural and landscaping work. Others involve this student to an extensive degree on a school farm. Many instructors utilize the farm placement for experience.

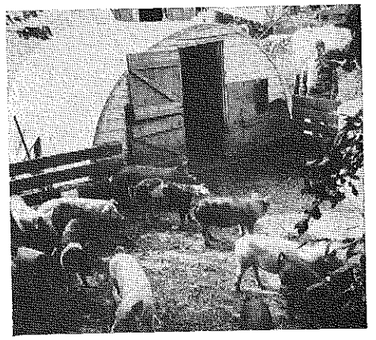
Our Program

In Charles City, we attempt to involve boys with farm placement experience in a productive enterprise on his own. A productive enterprise for this type of student must adapt itself to somewhat limited facilities, ease of management, and rapid return on investment if student interest is to be maintained.

One example of a productive enterprise that has been very successful for students in our department that meets the criteria outlined above is the feeder pig project. It has the following advantages: Approximately 3½ groups can be fed utilizing the same facilities during a calendar year. As many as 30 pigs can easily be fed using a waterer, self-feeder, small slab of concrete and a 12 x 16 hog house. Risk of price fluctuations is minimized as a boy sells his fat pigs and buys back the new group on the same market.

FFA Project

Even though a productive enterprise which has been mentioned above requires only limited facilities, we found in our chapter a few boys still unable to locate a place to house their project. To solve this problem, our FFA chapter is in the process of renting as a cooperative venture a set of farm buildings near the city limits which have been vacated due to farm consolidation and use it for livestock projects for boys in the chapter. We also plan to involve these students to a greater degree on our 55 acre chapter crop farm. It is our objective to provide for students agricultural business training stations in their senior year so that they will have a practical working knowledge of both crop and livestock farming. We believe that they will be more successful in working with farmers and farm products in their chosen agricultural business career.



Tom Dight, reporter of the Charles City FFA Chapter, shows the facilities necessary for a student to successfully conduct a feeder pig productive enterprise. Included is a waterer, hog house, self-feeder, and fenced concrete lot. Tom, a junior student, has fed 7 groups of feeder pigs since the start of his freshman year.

Book Reviews

Guidance for Youth, BRUCE GRANT, GEORGE D. DEMOS and WILLARD EDWARDS. Charles C. Thomas, Publisher. Springfield, Illinois, 113 pp. 1965, $4.60

The purpose of this book is to make available to youth, teachers and counselors a text in educational and vocational guidance. It is intended for the use of high school youth in classes of group guidance and career exploration and thus is one of the few books written for this purpose. Most guidance books are written for the teacher.

Guidance for Youth has three sections. Section I explains many terms for the teacher. Section II gives the students useful suggestions on how to improve their reading skills, how to use the library, how to take notes, etc. It also suggests that each student make an educational plan for himself. The most useful part is Section III which leads a student through an analysis of himself and what each variable means for his potential occupation. It covers vocational interest, abilities, aptitudes and what a student should understand about the interpretation of the Kuder and IQ tests, about vocational selection and about getting a job.

This book should prove to be very helpful to vocational agriculture teachers and other youth workers. It answers many of the questions raised as they teach units in occupational exploration to ninth grade youth.

John F. Thompson
University of Wisconsin

STANLEY, JOHN C., *Pocket Field Guide to Conservation*. Shoals, West Virginia 25562: John C. Stanley Books, 1962. pp. 95 (no price given)

This is a paper cover booklet for general use of persons interested in conservation. The author states that he has "endeavored to keep in mind such groups as bird-watchers, hunters, fishermen, farmers, gardeners, conservation workers, teachers, and students.

The text is organized in four parts:
I Flood Control and Water Conservation
II Soil Conservation
III Conservation of Forests
IV Fish and Wild Life Management

Except for introductory and four summarization pages, each page of the document includes a photograph and explanatory text. Photographs have been drawn from a number of agencies dealing with conservation programs.

The booklet should be a valuable reference in Junior and Senior high school courses where phases of conservation are included in the course content.

Raymond M. Clark
Michigan State University

As Seen in These Pages —

Five Years of Agricultural Mechanics*

RAYMOND HOLT, Graduate Student, University of Tennessee

Agricultural mechanics, like other areas of instruction in vocational agriculture, is undergoing significant changes to meet the occupational needs of the vocational agriculture student and graduate. While there has been an increased interest in certain instructional areas, such as welding and small gas engines, the fact should not be overlooked that these areas alone do not constitute a complete agricultural mechanics program. It should not be assumed that welding and small gas engine instruction are of little importance, because these areas are justifiable in most cases. The point is that vocational agriculture instructors should take a long, hard look at their present program (or lack of program) and evaluate its effectiveness in terms of being up to date and providing well-rounded mechanics instruction in depth.

All articles on agricultural mechanics appearing in the *Agricultural Education Magazine* for the past five years have been studied by the writer. The purpose of such a review was to glean ideas concerning the total program of agricultural mechanics instruction. The remainder of this article points out some of the outstanding articles that should be of considerable benefit to all vocational agriculture teachers in Tennessee.

Curriculum Construction and Course Planning

Guidelines for planning and content were presented in several of the articles. Christensen (Mar., 1964) suggested that the majority of vocational agriculture teachers need to revamp the entire curriculum in agricultural mechanics. Smith (Apr., 1965) gave details for setting up a block system in teaching agricultural mechanics. Examples of units, along with desirable skills to be acquired, were included in the article. Woodin (Mar., 1964) in an editorial also provided information concerning the planning of an agricultural mechanics program.

One method for determining what skills to teach is to develop checklists of skills to be acquired in each instructional area and then distribute these lists to people employed in related occupations, according to Monson (June, 1964). Examples of such checklists were given in the article.

Annis (July, 1962) advocated the use of job operation sheets in teaching agricultural mechanics. The sheet consists of the areas to be studied, the procedure in teaching the area, safety precautions, supplemental information, and references. A dual purpose is served by such job sheets in that the teacher and the student can utilize the material as a guide in performing the job.

Articles Pertinent to Specific Instructional Areas

A. Small Gas Engines

Quite a widespread interest has been shown in the instruction of small gasoline engine principles and repair. Clouse (Mar., 1964) advocated instruction in small gas engines as a logical method of introducing the area of farm power and machinery. He also included a suggested teaching outline for the unit. A more extensive article, however, by Lajeunessa (July, 1966) pointed out selected lecture topics, lab demonstrations, suggested shop equipment, training aids, and technical data available.

B. Electricity

Two articles—Todd (Sept., 1965) and Paulus (July, 1961)—described a suggested topical outline and how materials were obtained for an adult class and how one vo-ag teacher incorporated a four-year unit on electricity into the total program.

C. Farm Building Construction

Henderson (Mar., 1964) presented a beneficial article on a suggested topical outline and suggested principles and objectives in farm building construction. An additional article by Olsen (Jan., 1962) described how vo-ag classes were given practical experience in farm building construction.

D. Welding—Arc and Oxyacetylene

For the teacher who is considering what to teach, Norfleet (May, 1962) and Eaddy (Jan., 1966) gave pertinent ideas on how to decide what to include in a welding course. In addition, Eaddy pointed out suggested instructional units to be considered and the equipment needed for the units.

Technical information in welding may be located in Hollander's articles (Jan., 1962 and Mar., 1964). The first article was concerned with instructions for making lap joints, "T" joints, edge and corner joints, and butt joints; and the latter article concerned with a general treatment on hard surfacing.

E. Farm Power and Machinery

An excellent article by Mann (Aug., 1965), gives the objectives and instructional units in an eight weeks course. Competencies for farm power and machinery may also be found in Robinson (Mar. 1965), Baker (Dec., 1965), and Kahler (Apr., 1965). An extensive listing of unit operations for farm machinery can be located in Marvin's article (Mar., 1964).

(Continued next page)

* This article first appeared in the Tennessee Ag Ed Service Bulletin. Used by permission of Professor George Wiegers, University of Tennessee.—CCS

Raymond Holt

(Continued from page 206)

Other Articles of Interest

1. Shop Tool Storage

Several articles described various methods of increasing the amount of space for and the attractiveness of tool storage.

The articles are as follow:
Ridenour (April, 1964)
Jacobs (Mar., 1964)
Pautz (Aug., 1963)
McMaster (Apr., 1963)
McMaster (Dec., 1962)
McMaster (Nov., 1962)
Penwell (Aug.-Sept., 1962)
Irvine (Aug.-Sept., 1962)

2. Equipping the Shop with Power Tools

How many power tools are needed to properly equip the agricultural mechanics shop? Bear (Mar., 1965) gave a rather complete listing of the necessary tools.

3. Shop Safety and Discipline

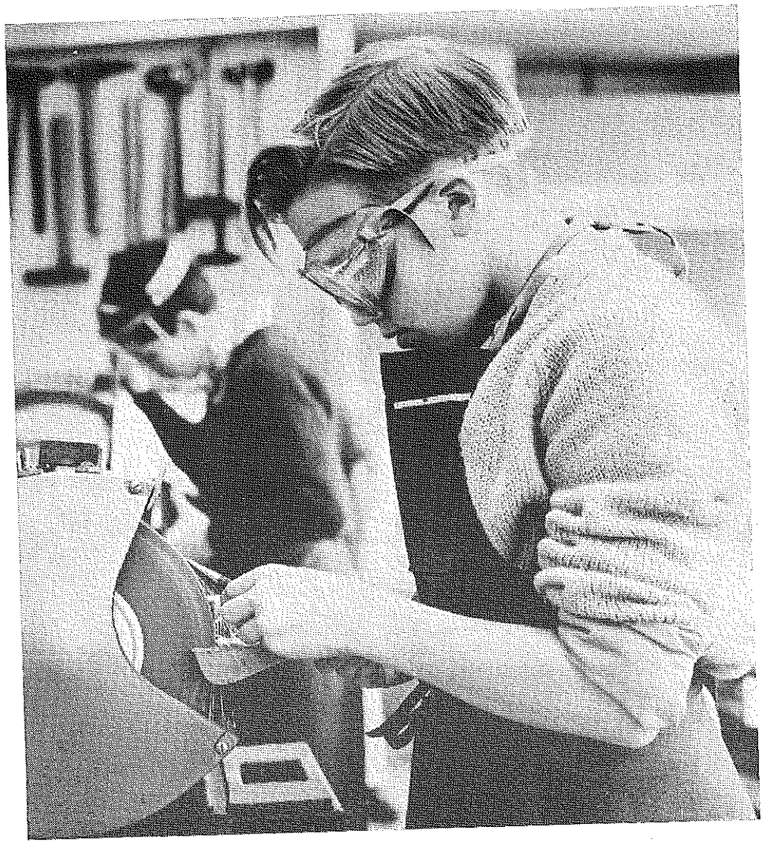
Every vo-ag instructor must be aware of safety at all times in the shop. The following articles discussed the liability of the teacher, liability releases, safety laws and devices, and principles of shop discipline:

Hoerner (June, 1966)
Bear (May, 1966)
Smith (Feb., 1966)
Diehl (Mar., 1963)
Devin June, (1962)

The issues of the *Agricultural Education Magazine* of January, 1962 and March, 1964 were fully devoted to agricultural mechanics evaluation and instruction. The vo-ag teacher would profit from reviewing all articles, especially the previously mentioned ones in this article.

As a summation, Albrecht (Mar., 1964) emphasized the following concepts concerning agricultural mechanics:

1. Agricultural mechanics is not only shop work, but it involves all of the practical applications of engineering to agriculture.
2. Preparation is necessary to teach farmers to be proficient, at least, in the skills necessary to maintain and service their equipment, to adjust their machines, and to make emergency repairs.
3. More use must be made of problem-solving techniques in order to develop the judgment and managerial abilities of students.
4. Teachers must be on the alert to present knowledge of agricultural mechanics to agricultural occupations other than farming and also to meet the new demands.



EYE PROTECTION FOR SHOP STUDENTS BECOMING MANDATORY IN MANY STATES

Sixteen states have adopted laws mandating eye protection for their industrial arts students, as well as for those conducting experiments in chemistry labs and participating in "shop" projects.

Eight of the 16 have passed mandatory eye protection laws in the last 12 months. The regulatory action in each case was brought about by the increasing number of school accidents involving the eye. High schools, vocational schools and colleges are all covered by the new laws.

As of 1/31/66 the following states have passed school safety legislation: Alabama, Arkansas, California, Florida, Illinois, Iowa, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Texas, Utah, Oklahoma.

Available statistics indicate that approximately 58% of the nation's laboratory and shop students live and go to school in the 16 states which have school eye safety laws.—Willston Products Division, Electric Storage Battery, Reading, Penna.

Agricultural Mechanics for Students Who Enter Non-Farming Occupations

DENVER B. HUTSON, Teacher Education
University of Arkansas

Denver B. Hutson

How effective is instruction in agricultural mechanics in meeting the needs of students who enter non-farming occupations? A recent study conducted in Arkansas focused upon this question and related questions.

In recent years considerable emphasis has been placed upon agricultural mechanics in Arkansas. Teachers have been involved in inservice education activities of various types designed to assist them in developing and implementing a comprehensive program of basic instruction in agricultural mechanics since a large number of students enter occupations other than farming. Reports in Arkansas indicate that about 28 per cent of the students in vocational agriculture, who are available for employment after graduation from high school, enter farming, 23 per cent enter occupations related to farming, and the remaining 49 per cent enter occupations not related to farming.

What instruction is best? This study was concerned with the extent to which instruction in agricultural mechanics provided knowledge and skills for non-farming occupations. Data for the study were obtained from 802 former students in Arkansas who had completed at least two years of vocational agriculture and who entered non-farming occupations after leaving high school. This sample represented 15 per cent of the total enrollment in vocational agriculture of students who were in the tenth grade in 326 schools in the state during the 1960-61 school year and an estimated 26 per cent of the students from that class who, since leaving high school, had entered non-farming occupations. Also, the sample was based on a study of students representing 147 schools over the state where teachers had been teaching in the same school since 1960-61.

The non-farming occupations included occupations related to farming and those not related to farming. Related occupations included a variety of occupations in such industries as poultry, dairy products, meat, vegetables, and berry packing and processing; grain processing and storage; cotton ginning, compressing and storage; feed and fertilizer manufacture and sale; hatchery operation and management; and farm machinery sales and service. These various occupations involved selling, assembly line work, inspecting, supervising, grading and delivering.

Only 17, or about two per cent, of the students selected in the sample were unemployed at the time the study was made. The data indicated that 82 per cent of the former students graduated from high school and that 42 per cent of the sample completed four years of vocational agriculture. Most of the students, 86 per cent, were employed in occupations not related to agriculture, while 14 per cent were in occupations in which certain knowledge and skills of agricultural subjects were required.

Where and in what kinds of non farming occupations do students of vocational agriculture in Arkansas enter? Most of the former students, 73 per cent, included in this study were employed in the same county in which they attended high school. The largest number of students, 37 per cent, who entered non-farming occupations, were employed in manufacturing industries, especially lumber and textiles. Other industrial groups included construction, with 16 per cent, and automotive, with 10 per cent of the employed students. Thus, these three groups included about two-thirds of the employed students. Fewer former students were employed in public utilities, printing, sales, and service occupations.

Most of the former students were employed as semi-skilled and skilled workers. The number of semi-skilled workers was relatively higher in manufacturing than in other occupational groups. There were relatively more skilled workers in the automotive and construction trades.

What mechanical skills and knowledge do students acquire that are useful in non-farming occupations? A total of 82 per cent of the former students who entered non-farming occupations indicated that the skills they acquired in agricultural mechanics while in high school were useful in the occupation in which they were engaged. They indicated that skills acquired in such areas of machinery maintenance, woodwork, electricity, carpentry, and tool fitting were more frequently used in their present occupations. For the most part students who completed four years of agriculture acquired and used more skills in each of the areas than did students who completed less than four years of vocational agriculture. There was more difference in the number of skills acquired and used between students with two and with three years of vocational agriculture than between students with three and four years of vocational agriculture. This was especially true in such skills as machinery maintenance, woodwork, carpentry, gas and electric motors, welding, and painting.

What additional knowledge and skills are needed by students in their selected occupations? Nearly one-third of the former students indicated a need for additional mechanical skills in their occupations that were not acquired in agricultural mechanics while in high school. These students were fairly evenly distributed among the various topographical areas of the state. Former students noted a need for additional knowledge and skills in machinery maintenance, interpreting blue prints, gas motors, and welding. Additional skills and knowledge in these areas were noted particularly by students engaged in automotive and transportation occupations, construction industry, manufacturing industries, food processing industries, and sales and service occupations. Skills and knowledge were mentioned less frequently in carpentry, cold metal, hot metal, sheet metal, and concrete.

Summary

The findings of this study indicated that students in vocational agriculture acquire knowledge and skills in agricultural mechanics that are used effectively in non-farming occupations. Former students with relatively few years of occupational experience have attained semi-skilled and skilled levels of competency in the world of work. The comments from former students indicated that most of them felt that the instruction received in agricultural mechanics has definitely increased their employability in occupations involving a knowledge and skills of mechanics.

(Continued next page)

Happiness Is the Annual Advisory Council Banquet

FRANK WESTFALL, Vo Ag Instructor, Deer Lodge, Montana

Frank Westfall

Agricultural Advisory Council meetings need not be a rote ceremony. The Deer Lodge, Montana, Vocational Agriculture Department makes its November meeting each year a special occasion. The department's twelve-man advisory council and the local FFA officers and chairmen use this meeting to discuss and finalize all phases of the department's plans for the ensuing year.

The meeting begins at 6:00 p.m. with a pre-dinner gathering at the Vo-Ag building. While the consumption of fruit juice cocktails, hors d'oeuvres, and other tidbits goes on, advisory committee members and FFA members engage in conversation and levity which starts the meeting off on an informal, relaxed, and professional note, as well as giving late comers leeway for late arrival.

After about 30 minutes of socializing, FFA members then escort the council members to a dinner prepared and served in the Home Economics facility by members of the local chapter of Future Homemakers of America, who also provide a short program of entertainment. As soon as the dinner is over, the meeting, which had been opened previously with official FFA ceremonies, recesses back to the Vo-Ag building for the business session.

Pre-planning

At least two weeks before the meeting occurs, all members of the advisory council have been provided, by mail, a complete program with an agenda of topics to be discussed, including a complete FFA program of activities for the year, a report on the chapter operated farm, FFA budget for the year, and an up-to-date inventory of chapter owned property. Copies of material, pertinent to the meeting, such as results of studies which might be useful in program planning, are also enclosed, as well as a list of invited guests, generally limited to six, representing the school board, State Agricultural Education Department, and local civic clubs. With all this material on hand, the meeting proceeds with a minimum of wasted time.

The Meeting

The first portion of the meeting is devoted to FFA affairs, beginning with officers reporting on their duties and planned accomplishments. Then each committee chairman reports on one of the activities his committee had adopted for the year and is prepared to answer any questions regarding any other activity planned by his group. Finally, the president and secretary of the Junior FFA give a brief report and the FFA part of the meeting concludes with official closing ceremonies. FFA members generally leave at this time, usually about 9:00 p.m., unless they show a desire to stay and the chairman of the advisory council calls his meeting to order with a goal of adjourning in not more than two hours.

Having already accomplished the goal of stimulating interest and effort in the minds of the FFA members by appraising their program, the committee then settles down to review the department's total curriculum for the year. Reports on resource materials, all-day and adult classes, expanded facilities, or other pertinent items are discussed and recommendations made to be presented to the school board for further study.

Although this annual meeting takes up a full evening, council members make every effort to attend, and almost always do. Other meetings during the year are called as needed with committees carrying the burden of most activities.

Denver Hutson

(Continued from page 208)

Data of this study and other information obtained in visits to schools suggest that continued emphasis should be given to improving and expanding the instructional program of agricultural mechanics. Special consideration should be given to competencies needed by students who enter the various non-farming occupations. Also, emphasis is needed toward improving the mechanics laboratory to include more modern tools and equipment and appropriate arrangement of equipment.

Finally, this study emphasizes the need for different types of industrial knowledge and skills, types that can be adapted to a variety of occupations including those agriculturally related, and knowledge and skills that can be taught by the local teachers of vocational agriculture qualified for instruction of this nature.

John Campbell (right) Waverly Shell rock, Iowa Vocational Agriculture student, is receiving instruction from Ed Fuass in his agricultural mechanics occupational training program.—Photo-Dalbey

Markesan — Pilot Training Program

ARLYN W. HOLLANDER, Vocational Agriculture Teacher
Markesan, Wisconsin

Arlyn Hollander

Background

During the past four years our enrollment has been between 70 and 75 students in four Agriculture classes. In addition, I teach at least one Young Farmer Class and one Adult Farmer Class each year. This last year, out of a graduating class of 82, four of the top ten in the class were Vo-Ag students.

We have large farms in our community and they are getting larger. Many of our farmers started farming since World War II, about 45 years old, and still want to spend another ten years on the farm. However, we have been able to place most of our best Agriculture graduates in partnerships with their fathers, if a large enough unit has been secured.

During the past eight years I have taught a full years course in welding several times before we enrolled in the Pilot Training Program under the 1963 Vocational Education Act. When the State Department of Public Instruction in Wisconsin was initially looking for schools to come under the Pilot Training Program, Markesan applied and was accepted. Of the 34 schools originally selected, Markesan was the second smallest school, and I was the only Vo-Ag teacher teaching under the program. As personal background I had enrolled in an Advanced Welding course at the Madison Vocational, Technical and Adult School in 1963-64 where I specialized in all position welding of structural steel and pipe. During 1965-66 I again enrolled at the Madison Vocational School and specialized in TIG (Tungsten Inert Gas) welding of stainless steel and aluminum in all positions, plus work on the MIG (Metallic Inert Gas) unit. I also had sufficient background and experience in industry to qualify to teach under the Pilot Training Program.

How The Program Is Set Up

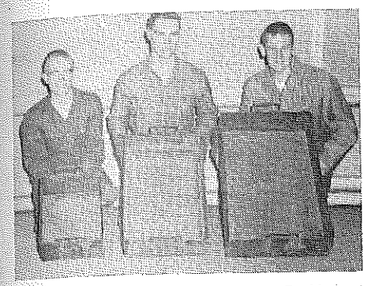
The four Agriculture classes are scheduled in the morning, 55 minutes each. Welding under the Pilot Training Program is limited to seniors and the class is scheduled the first two periods in the afternoon, a double 55 minute period. All student programs are cleared so the double period of welding has priority. Students receive two credits for this course. Last year, 14 of the 19 students were enrolled in both Agriculture 12 and Welding. This year 13 of the 16 students are so enrolled. All Vo-Ag students carry a regular farming program in addition to the job occupational experience under the Pilot Program.

During the first three months of this year, the entire double period is spent learning the basic skills and techniques associated with welding. We rotate our groups between oxy-acetylene, arc, TIG and MIG welding. Last year all students received instruction in fusion welding all of the various kinds of joints with oxy-acetylene and regular arc welding (stick electrode) in the flat and vertical up position. Ten students received instruction in MIG welding and five students were trained in welding stainless steel on TIG in all positions. This year we expect all 16 students to receive basic instruction in MIG welding in addition to oxy-acetylene and stick electrode welding in flat and vertical up position. Approximately ten students will receive basic instruction in the TIG welding of stainless steel in all position. TIG welding on aluminum will also be taught. If a student can satisfactorily do fusion welding with oxy-acetylene, chances are excellent that he will adapt fast to TIG welding. If he has problems on fusion welding with oxy-acetylene, he will have many more problems on TIG welding.

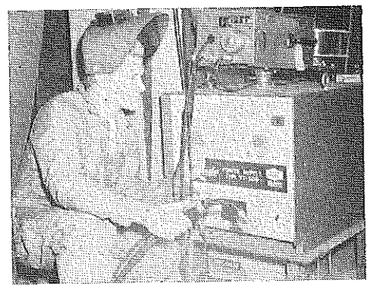
On-The-Job-Training

During the last six months of the year we expect to spend half of our time learning new skills and techniques, and the other half of the time on occupational experience, or actual ON-THE-JOB-TRAINING.

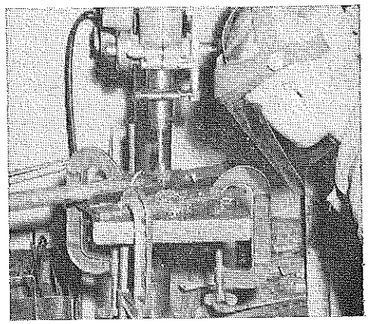
We do not set this up one period at a time or one day at a time. This is set up on a two week basis, so we can get construction projects started and finished. With this method we are able to work twice as fast on construction or repair projects. The training is all given in the Agriculture shop. We average slightly less than two students per welding unit. While part of the class is learning new techniques, the other part will start to plan their project. Those which need to cut channel, angle or bar stock on the power hack saw or metal cutting band saw for projects will have this cut out ahead of time. Students doing plow share repair, or other repair jobs will mark and trim plow shares with the cutting torch, and grind and fit to receive the new point or share. When it comes time to do the actual welding there is no delay. At the present time we have at least a $5,000 investment in consumable supplies, which includes the following items: steel—bar stock, rounds, flats, sheet and plate, angle and channel; stainless steel and aluminum; items for plow share repair, hard facing and corn planter runner repair; various types of welding electrodes, E6010, E6011, E6013, E6024, E7018, E10018, stainless steel and nickel; the necessary kinds of wire for TIG welding stainless steel, aluminum and magnesium; as well as wire for the MIG units.



(1) Students—Wayne Schultz, Lonn Zuehls and Dennis Fenske are shown with steel pans of 5, 10 and 15 gallon capacity constructed as projects in the On-The-Job-Training phase of the welding program.



(2) Student—Tom Wepner is shown adjusting the inductance on a Metallic Inert Gas (MIG) unit. Inductance controls the wetness of the puddle.



(3) Student—Douglas Dugenski is shown drilling a 3/4" diameter hole in a 1 and 3/8" diameter round. The round is then cut off in a power hack saw and forms the head of a 3-1/2# mallet.

Construction and Repair Projects

Items constructed by students include the following: (1) Steel saw horses varying in height from 12 to 36 inches; (2) Steel pans, mostly five and ten gallon capacity to drain tractor crankcases and transmissions, (SEE PICTURE), but in last years class one student made a pan 30" wide, 54" long, and 6½" high. His dad is in the gravel crushing business; (3) Steel mallets varying in weight from 2½# to 25#; (4) Special cups which attach on to a barrel (15, 30, and 55 gallon size) and serve as watering units for pigs and chickens, (See 1966 June-July issue of *National Future Farmer Magazine*, Pg. 48); (5) Steel inclines to do wheel bearing work on tricycle type tractors, (See 1966 October-November issue of *National Future Farmer Magazine*, Pg. 70); (6) Feed carts and similar equipment is repaired; (7) Tractor tire chains, plow shares, draw bars etc; are hard faced, (See March 1964, *The Agricultural Education Magazine*, Pgs. 208-209; (8) The aluminum boats and two aluminum grain elevators were repaired, plus a number of aluminum shovels. Students pay for supplies actually used. Steel is sold by weight at our school wholesale cost; special electrodes and hard facing rods for special jobs are paid for by the student according to what he uses and at our school cost basis.

In Classroom

We will average about 10% of the time in the classroom. At the start of the year most of the first week is in the classroom with basic instruction. Whenever new skills and techniques are introduced, sufficient time is spent in the classroom. Demonstrations are given to half the class at a time. Individual help is given and demonstrations are repeated as often as necessary.

Second Year

This is the second year of a three year period under the Pilot Training Program. The lessons learned by the various schools conducting approved courses under the program will be used as a basis to refine existing programs, and to establish additional programs in the future. We expect to conduct our program in the future as outlined, whether the 1963 Vocational Education Act is extended or not. With the help of federal funds we have been able to secure additional equipment which includes the following items: (1) Two MIG welding units (See Picture); (2) Two TIG welding units; (3) A three horse power heavy duty grinder with 2½" x 14" wheels; (4) A metal cutting band saw with 8" x 24" capacity; (5) A heavy duty drill press with a three horse power motor, power feed, extra slow speed, extended drilling depth, and capacity up to 1½" diameter with No. 4 Morse taper; (6) A metal former with ⅛" by 12" capacity; (7) A heavy duty iron bender; and (8) a heavy duty shear. In addition we have secured consumable supplies in terms of welding electrodes, steel, stainless steel, aluminum and pipe. The steel received under this program is used for practice in welding the various joints in flat and vertical position. Some of the advanced students do get a start on overhead welding. Steel used in construction projects is bought entirely with school funds.

Conclusions

I am very enthusiastic about the program. About 65% of the students which graduated in 1966 are either employed in welding, or welding part time—being employed by farm machinery dealers, or are at Vocational, Technical and Adult Schools receiving additional training. The present world situation is disrupting the normal employment situation. The number that will actually choose welding as a career remains to be seen. This program does cramp an already busy program for me, but I would rather teach something that I am interested in than sit in a study hall.

Needed —

Specialized Instruction

ROGER LAMBERT, Vo-Ag. Instructor, Colby, Wisconsin

Roger Lambert

The need for specialized programs in Farm Mechanics has developed over the past twenty years. As the nation moved from war production to consumer goods, much of the country's resources were put into development of mechanical devices to improve the production of goods and services and to make it easier and less costly to produce each unit. As each mechanical marvel was produced, more were invented, until today almost any farm activity involves mechanical devices. This need for an understanding of mechanics has necessitated the addition of specialized instruction of farm mechanics. Generally most mechanical devices used on farms or in related areas will fall in basic groups of instruction. Some of these are: *Farm Mechanics, farm tractors and engines, welding- carpentry and wood construction, electricity, plumbing, and materials handling.*

When?

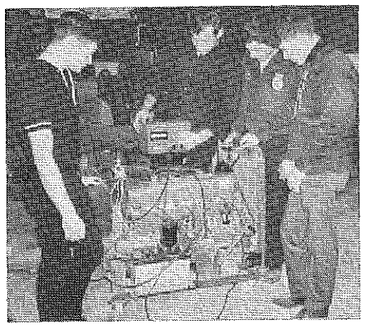
Specialized courses in farm mechanics can be inserted into the Agriculture program in the junior and senior years. Before this time it is considered generally too early to specialize. The problem of how much time to spend on this type of program can be handled much easier if we will think in terms of five years of agriculture rather than the traditional four. With the vast increase in needed education in the non-mechanic areas of agriculture, we certainly cannot rob from this time. The solution then is to provide a fifth year of Agriculture which means a senior student will probably take two classes of agriculture. By this time he is interested in an occupation in agriculture and in getting the necessary background for this career.

Seven for a Fifth

The advantages of a fifth class in agriculture are many. *First,* it utilizes the instructor's time better. He can be of more value to the school teaching a class of farm mechanics as a fifth class than he can by monitoring a study hall for that hour. *Second,* the shop facilities can be utilized more effectively by the additional class in mechanics. This should double the use made of the farm shop. *Third,* it will help justify additional equipment and facilities for those shops that are deficient because adequate use was not made of the facilities. *Fourth,* it will provide broader and deeper knowledge of farm mechanics not only for the boy entering farming but also the boy entering the off-farm related occupations. *Fifth,* it will provide an area of interest for many who would otherwise throw away their background in agriculture in favor of some other type of work. *Sixth,* in larger systems the addition of this class may make it possible to have a separate instructor for farm mechanics which would be desirable, since each could specialize in his field of interest. *Seventh,* specialized instruction in farm mechanics in the junior and senior year would leave more time for emphasis on farm management and farm economics which is taught as the usual senior course. Hence, this course becomes specialized for those planning to farm.

Co-op Program

The offering of full year courses in farm mechanics opens the door for cooperative work study programs in the related areas of agriculture. Such programs can be worked out between the school and local agriculture businesses. Agriculture businesses that could participate in a cooperative work study program might be farm implement dealers,



Students get a first hand opportunity to work with engines and test equipment in the Farm Power shop.

for areas such as farm machinery, repair, and assembly; field service and sales; materials handling dealers for areas such as dairy and livestock equipment, food processing and handling equipment, lumber and pulp equipment, etc.; tractor sales and service for repair and maintenance of tractors; local blacksmith and mechanics shops for areas of welding and metals; local electricians; plumbers; and others who deal primarily with farmers or farm services would be able to employ some of the boys enrolled in these specialized classes. The classroom training would provide the needed background and knowledge of the job. The part-time job would give the boy experience and a working knowledge of the job. The combination of the two should enable the student to obtain upon graduation a full-time position in this area of work or it may lay the groundwork for further technical or vocational training required to master all the needed skills and competencies for this particular job.

It should be noted that all areas mentioned cannot be covered in one or two classes, but that each school, according to the needs of the local community can choose to emphasize one, two or three areas that are most important in that region. It should be further understood in any type of cooperative study program where a boy is employed, the standards of the Industrial Commission must be followed, also union rules and regulations must be observed where they might apply.

An Example

The following specialized mechanics instruction is an example of what might be offered in the eleventh and twelfth grades of agriculture. The courses described have been conducted the past three years at Colby High School. The school is in a rural area with 560 students in grades nine through twelve. Two instructors are employed to handle the vocational agriculture department.

(Continued next page)

Selling Vocational Agriculture in Your School

FLOYD J. DOERING, Supervisor, Wisconsin

Floyd J. Doering

A half century ago, the public high school in the United States was a selective institution enrolling a small percentage of the youth of high school age most of whom were following a college prep program. Today, the public high school is a non-selective institution enrolling nearly all youth in the high school age group who are following a variety of programs depending on their abilities and interests. This change has come about because more and more parents demanded a better education for their children. Vocational agriculture has long been one successful facet of the public high school curriculum in America.

America's mightiest weapon is its agriculture and all the fields allied to it. The American farmer's ability to produce with less and less manpower an abundance of food and fiber for an ever increasing population is without parallel. Fully 40% of all occupations are in agriculture related fields. With 35% of the vocational agriculture graduates returning to the farm and an additional 26% working full time in agriculturally related occupations, the need for vocational agriculture in our schools has never been greater.

Yet, while one vocational agriculture department has a very large enrollment, a neighboring department with similar conditions prevailing agriculturally, has a serious deficiency in enrollment. Sometimes so severe that the entire program is in jeopardy. Why is this so? It would appear the answer lies in the vocational agriculture instructor "selling" his program locally.

George M. Roberts, Instructor in Agriculture at Denmark, Wisconsin, has for years put into the hands of people in his school district an informational brochure. The agriculture program started in Denmark in the 1951-52 school year with an enrollment of 63 students. It grew to 82 students the following year, and went over the 100 mark in 1960. The enrollment increased to 158 in 1964-65, and an additional agriculture instructor was employed for 1965-66 as the enrollment soared to 165 students.

The following outline is designed to help the agriculture instructor prepare such a brochure for use in his local district. Information taken from Mr. Roberts' brochure was helpful in developing this outline.

The Four-Year Vocational Agriculture Course at _____ High School

I. Preliminary Remarks
   - A. What is vocational agriculture?
   - B. Who should enroll in vocational agriculture?
     1. Those interested in farming
     2. Those interested in agriculture related fields
     3. Any person, urban or rural, who desires and can profit from education in agriculture
   - C. Importance of agriculture to the local district

II. Job Opportunities in Agriculture
   - A. Forty per cent of U. S. Employment in agriculture related fields — 24 million workers
     1. Thousands of jobs in hundreds of careers
     2. Two plus openings for each college graduate
     3. Numerous opportunities for non-college people
   - B. How does the future look?
     1. Population explosion—280 million by 1970
     2. Labor force—87 million, etc.
     3. The boom in agriculture
   - C. Partial list of numerous agriculture related occupations

III. Agriculture Curriculum Offered at _____ High School
   - A. Agriculture I
   - B. Agriculture II
   - C. Agriculture III
   - D. Agriculture IV

   or modified system

   (Specify changes made to include the agriculture related fields)

IV. The Local Agriculture Department
   - A. Brief history
   - B. Enrollment
   - C. Youth organizations
     1. FFA
     2. Junior Dairymen's Association
   - D. Past accomplishments of department
   - E. Few comments about the instructor(s)
   - F. Brief remarks by School Administrator, Principal, and/or Guidance Counselor will be beneficial.

Material may be added or subtracted from the outline as it pertains to the local conditions in each agriculture department. If the agriculture instructor does not "sell" his program, who will do it for him?

Roger Lambert

(Continued from page 212)

One instructor handles the classroom phase, the other the shop phase. The first specialized course in mechanics comes in the junior year. The course offered to juniors covers welding and metal work for the first semester; wood, tools, carpentry and concrete for the second semester. The second course offered to seniors is farm power and machinery. This course runs for one year and covers farm machinery repair, operation and adjustment, farm tractor and truck repair and maintenance. The senior course offers good opportunity for boys to begin a cooperative education program in the farm tractor and machinery industry. The two courses also give the much needed depth of coverage to the farm mechanics field for those boys who will return to the farm.

It should be emphasized that any specialized program should be planned with the needs of the local community in mind. It is essential that the program serve the farm community and employment area of the students who will be involved in the program. Long range planning is essential to the development of good programs in specialized areas of vocational agriculture.

Planning — A Systematic Process

DAVID G. CRAIG, Teacher Education, University of Tennessee

David Craig

Many educators are familiar with the humorous sign that reads Plan Ahead. When we reflect upon our own planning efforts there may be more truth than humor in those two words. Since most people do some kind of planning each day—at home, at school, and elsewhere—it is necessary to be reminded of the nature, importance and the process of effective planning.

Nature of Planning

Planning may be defined as a method or series of methods of thinking out purposes and operations before taking action. Thinking out implies a quiet and serious consideration or study of events in the past, present or future. The term process means a series of steps ordered to produce a particular result. Thus, planning is a proces requiring a series of thinking steps prior to taking any action.

Planning takes on additional meaning when some assumptions are made. In the first place, it must be assumed that the social, economic, physical, political, religious and technological environment is relatively free so that individuals have a choice in thinking and acting. Secondly, it is assumed that people and schools want to improve. Although this is not true everywhere, the desire to change is a prerequisite for effective planning. Therefore, planning becomes more meaningful when individuals have relative freedom to act and the will to improve themselves.

Need for Planning

The agricultural education situation at the regional, state, area and local levels is one of relative freedom to devise and conduct new programs. State level and other surveys have indicated many training needs in off-farm agricultural occupations. A substantial number of research and developmental proposals have been approved and are now operative. In this context of opportunity planning is essential.

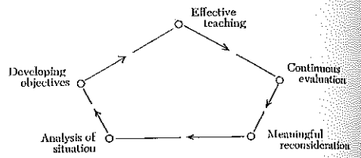
Planning is also needed from the standpoint of the size and complexity of the field of agricultural education. New programs, involvement of teacher specialists, more and different kinds of students, and the expanding research dimension are examples of this complexity.

The 1963 National Vocational Education Act is one of opportunity and freedom, not one of hindrance and narrowness. Many schools are not taking advantage of the benefits of this new law.

Hence, systematic thinking and planning must take place throughout agricultural education, in order to achieve the program potential that exists.

The Planning Process

What steps are to be used if planning is to be systematic and useful? The Extension Educational Process[1] developed by Leagans provides an analogy in "how to plan effectively."



The **first phase** of planning involves a thorough study of the situation. This requires gathering a wide variety of related facts and information. Facts are needed about students, i.e., numbers, ages, aptitudes, interests, and cultural background. Facts are needed about occupational requirements and trends. Facts are needed about human, physical and monetary resources. One must seek these facts beyond the community boundaries to area, state, regional and national levels. One should visit pilot programs and gain insights into ideas applicable to the local situation. Once the facts and information are gathered, there is need for analysis and synthesis as to *what is* and *what should be*.

The **second phase** involves developing meaningful objectives. Objectives are educational ends to be achieved and problems to be solved. It is helpful to state long-range and short-range objectives so as to provide program continuity. General objectives should indicate the overall ends to be achieved or direction of the program. Specific objectives should be characterized by the following: 1) who is involved, 2) the specific terminal behavior expected, 3) criteria for acceptable behavior, and 4) the conditions under which the behavior is to be performed.

The **third phase** is teaching. Effective teaching is based upon the following: 1) a qualified instructor, 2) interested and capable students, 3) meaningful occupational subject matter, 4) useful instructional materials, and 5) functional facilities. It is essential that methods of teaching, including supervised occupational work experience, be integrated with content presentation.

The **fourth phase** is evaluation of teaching. Evaluation includes placing value on skills, knowledges and attitudes achieved as well as analyzing these results in terms of the general and specific objectives established earlier. The analysis assists one to determine how well the objectives were written and to what extent each one was accomplished. Evaluation should be continuous and involve lay as well as professional people.

The **fifth phase** is reconsideration. Reconsideration is necessary after evaluation because the situation is different. First, people have changed. Secondly, resources have changed and occupational standards have changed. Thirdly, the agricultural instructor knows more about new needs, interests, and program opportunities. As indicated above, all persons involved in the program should be a part of this important planning step.

[1] Kelsey, Lincoln D. and Hearne, Cannon C., *Cooperative Extension Work*, Ithaca, New York: Comstock Publishing Associates, 1963. Pages 481-482.

Why Are We Here

R. W. CLINE*

This simple question could be answered with two equally simple and direct statements; first, we have sensed a problem or series of problems in relation to our profession as teachers and second, we are interested in pooling our powers for analysis and reflective thinking in plotting a course of action for the immediate future and the years ahead.

My comments will therefore consist of some concepts and guidelines which hopefully may make some positive contribution to the outcomes of this workshop.

The concerns which prompted this session are an outgrowth of *change*. These changes are so striking in contrast to the immediate past and so universal in scope that they influence every facet of our daily lives. The present age has been described by such terms as affluence, automation, computer, information, science, space, and leisure to mention only a few. To elaborate, I quote from an article by John Diebold in a recent issue (July 23, 1966) *Saturday Review* as follows:

"It is an extraordinary era in which we live. It is altogether new. The world has seen nothing like it before. I will not pretend, no one can pretend, to discern the end; but everybody knows that the age is remarkable for scientific research into the heavens, the earth, what is beneath the earth; and perhaps more remarkable still is the application of this scientific research to the pursuit of life. The ancients saw nothing like it. The moderns have seen nothing like it until the present generation. . . The progress of the age has almost outstripped human belief."

Does this sound like 1966? The foregoing lines were spoken by Daniel Webster in 1847 at the opening of a new stretch of railroad track in New Hampshire. It is quite clear that this generation has no monopoly on innovations, change and the wave of social and economic problems that accompany them.

What significance do the changes have for education and more especially those facets which deal with preparation for acceptations in the broad field of agriculture?

In response to the question, what does man want? Alfred North Whitehead stated, "Man wants to live. Man wants to live better. Man wants to live even better."

We in vocational education are especially dedicated to helping men, all men if you please, live even better in these changing times.

In this increasing complex social and economic structure basic information or knowledge is rapidly becoming a "must" for all who would strive to live "even better." The development of new scientific and related information is overwhelming the human capacity to use it effectively. Just as automation has served to multiply man's power to produce goods and services, the computer and other devices have been developed to direct the flood of new knowledge to beneficial use.

More than ever before patterns in education are designed to recognize individual differences and to promote excellence at all levels for all people, Roger R. Williams, a noted scientist, asks, "Is there any better basis for promoting our freedom than by understanding the difference between men?"

Due to the foregoing conditions along with rapidly changing occupational complexes and more leisure time, education is already a lifetime process, geared to vocational competency and the enrichment of the way of life, especially the retirement years.

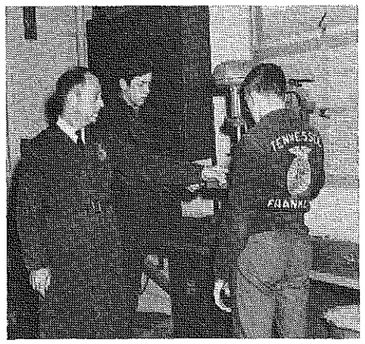
There seems to be rather general agreement among educators and laymen that more teachers and better teachers are two of our most critical problems as we plan for the future.

Although computers and teaching machines coupled with related hardware will bring new learning dimensions to the classroom, these devices may increase rather than decrease the importance of the teacher's role. The machine can perform only that which is willed by the mind of man.

*EDITOR'S NOTE: Dr. Cline had prepared this address for a workshop for supervising teachers at Colorado State University in August. Cy Henry, Vo Ag Teacher, Coolige, Arizona, furnished this copy. It is published as a tribute and memorial to Friend R. W. Cline.

R. W. Cline

As supervising teachers you are the most vital segment in hierarchy of teacher education. Through his widely discussed book *The Education of American Teachers* Dr. James B. Conant has created a new image concerning the value of student teaching and those who direct it. This concept has had at least some impact upon the attitude of those concerned with college teaching. In their recent book *The College of Agriculture* Kellogg and Knopp state "many of the arguments for practice teaching set forth by Dr. Conant in his book *The Education of American Teachers* apply also to college teaching." Colleges that have adopted a policy for all newly appointed teaching assistants, instructors and assistant professors to receive some guidance have had no real staff apposition.

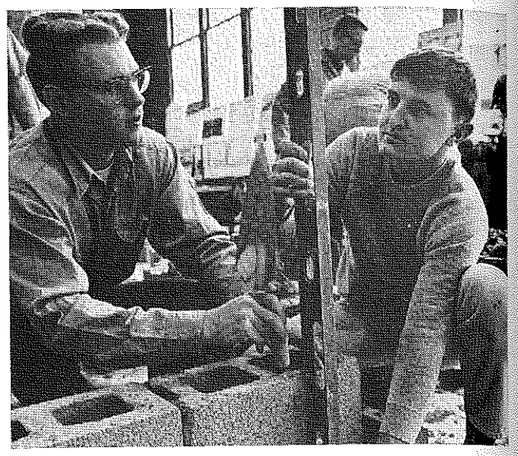


Walter V. Potts, teacher of vocational agriculture at the Franklin, Tennessee High School explains how to use the drill press to two of his students. They are from left: Larry England and Danny Logan.

Stories in Pictures

GILBERT GUILER

Ohio State University



Concentration and care with proper tools which will result in a level end square building corner as stressed in Minnesota Agricultural Mechanics shops.

Photo by F. Bear.

Walter V. Potts, teacher of vocational agriculture at the Franklin, Tennessee High School, explains the electrical entrance switch to two of his students. They are from left: Earl Vernon and Danny Webb.

Photo by K. Mitchell.

Reminiscent of early farm days when horse-drawn wagons pulled materials or produce on the farm is this view of an old wagon wheel sitting in the sun. Weeds growing up around it attest to its retirement from active duty.

Bureau of Reclamation photo by Mel Daivs.

Volume 39 April, 1967 Number 10

Agricultural . . . . . Education

Dr. A. A. Baltensperger, Head of Department of Agronomy, New Mexico State University, discussing cotton research with Vocational Agriculture Teachers. (left to right): Ronald King, Deming, New Mexico; Delano Arnold, Elida; Stanley Lewis, Estancia, and Dr. Baltensperger.

Featuring — RESEARCH

1917.....50th ANNIVERSARY.....1967

1st National Vocational Education Act