

THE VISITOR

Devoted to the Interest of Agricultural Education in
Minnesota Schools

VOL. VIII

May, 1921

No. 9

STATE SUPERVISORSHIP

Paul Calrow has been appointed state supervisor of agricultural education for Minnesota, his term of service beginning May 1. He is a graduate of the Michigan Agricultural College and has taught agriculture in the following high schools: Washburn, Wisconsin, one year; Sherburne, Minnesota, two years; Fairmont, Minnesota, three years. Mr. Calrow has earned his promotion by his splendid work in vocational agriculture at Fairmont.

The Visitor, in behalf of the Division of Agricultural Education, wishes to congratulate Mr. Calrow upon this recognition of his worth and to offer its heartiest cooperation in the cause of vocational agriculture.

DISPLAY MATERIAL IN AGRICULTURAL ROOMS

In order to keep our pictures and other display material changing with the progress of each class, and to keep this material in good condition, we have standardized it as far as possible.

Sheaf samples are easily made uniform in size, so by packing away in boxes they can be quickly arranged on the wall when the class is studying the particular kinds of grains or grasses.

This also tends to lengthen the life of the samples, keeping them cheerful in appearance and free from dust.

The pictures vary, but many fit a frame 18 by 4 inches, so by simply putting two or three pictures in the frame, one behind the other, they can be changed quickly. This keeps the pictures themselves from being wrinkled or torn and always in the proper frame. For instance, in one frame 7½ by 10 inches, pictures of W. D. Hoard, Cyrus H. McCormick, and a Guernsey cow are always available to be used when wanted, yet always new to the class.

Keeping special charts and some advertising charts stored away until needed, arouses interest because of their newness.

VICTOR NYLIN,
Lamberton, Minn.

CURRICULUM BUILDING IN AGRICULTURE

The Visitor is pleased to give in this issue the paper of Supervisor C. W. Watson, "Vocational Analysis as a Guide in Curriculum Building in Agriculture," which he read at the meeting of the Vocational Association of the Middle West in Minneapolis.

"Vocational agriculture in the secondary all-day school has two purposes; one vocational and the other educational. Vocationally, the course must function for the student as preparation to farm. To accomplish this it must do for him three things:

1. Give him a working knowledge of productive farming, particularly as it is practiced in his own community.
2. Give him a working knowledge of how best to dispose of his product to assure to him an equitable return.
3. Give him an understanding of his personal, social, and civic duties as a rural citizen.

Educationally, it must give him a training that will enable him more easily and better to solve the problems of life, and particularly life on the farm, as he confronts them. This means:

1. That the course must give him a certain amount of agricultural information, but the mere giving of information can easily be, and usually is, over-emphasized. However, the course should teach the student how to find information when it is needed.

2. Vocational agriculture must train the student to do constructive thinking. It should teach him to collect facts, to tabulate data, to consult authority, and with such information, to form judgment of his own.

3. It must train him for community leadership. It must develop initiative and aggressiveness. It must develop the ability to express himself easily and well.

4. It should train him to attack farm problems intelligently and solve them rationally.

As for the first fundamental principle, we must assume in curriculum building that the vocational agricultural department is provided with ade-

THE VISITOR

Published monthly by the Division of Agricultural Education, University of Minnesota, University Farm, St. Paul, Minn.

Entered as second class matter at the post-office at St. Paul, Minn., under the act of August 24, 1912.

Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized August 2, 1918.

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quate school equipment; and furthermore, that the student has access to real farm conditions for practical farm work.

As for the second principle, namely, that both content and instruction must be within reach of the training and experience of the prospective student, it is a matter of common knowledge among educators that in real teaching the new must be presented and interpreted in the light of past experiences. Vocational agriculture is unique in the opportunity which it affords to apply this teaching principle. Most vocational agriculture students are really "Trade-extension" students. They come to the department already serving a kind of apprenticeship in farming, and therefore alive to many of its problems. This fact should be capitalized in outlining the course and in planning the instruction.

In order to realize the vocational aim, the subject matter of the curriculum must be the subject matter of the vocation. It is, therefore, to the vocation that we must go to determine what the subject matter of the curriculum must be. In other words, our problem is to find some method whereby we can be assured that the subject matter which we choose for the curriculum is the subject matter of the vocation.

What are some of the most common methods of procedure followed by teachers in outlining their courses? Perhaps the most common one is the text-book method. The instructor selects some text from an approved list, divides it by pages or topics into from two to nine weeks' periods, supplements it with references from other

similar texts and some bulletins, and calls the result his course of study. The ridiculousness of such procedure in a vocational course is so apparent that it needs no further elucidation. And yet our state has teachers, and every other state has teachers, who are doing this very thing.

Perhaps the second most common method of procedure is for the teacher to consult his college notebook, copy therefrom his carefully preserved prescriptions, and give to his students a second-hand dose of the medicine he took in college, and almost invariably the result is an overdose of the instructor's college major.

Perhaps, the third most common method of procedure is for the teacher to adopt in toto a course that has been published by the state office. Courses sent out by the state office may be valuable as suggestions; but I know of no state whose type of farming is so uniform throughout the whole state that the type warrants the same course for all communities. I repeat, therefore, that state courses may be valuable as suggestions, but can not be adopted in toto. If a teacher is not justified in following a reputable text; if he is not to be guided by the courses he took in college; and if he is not to follow a course of study handed him by the state department, what is to be his method of procedure? Let us look to farming itself, and see what it has to offer. In other words, let us analyze the vocation.

Perhaps, the first question that the teacher of vocational agriculture should ask himself in analyzing the vocation is:

What is the type of farming practiced in this community? The correct solution to this problem presupposes an acquaintance with local farming. The farm survey has been suggested as a means of making such acquaintances. Let us suppose the answer to our question to be general farming, consisting of both livestock and crop production.

The second question, which comes immediately as a result of the first is:

Of what particular farm enterprises does the type of farming consist? Suppose further analysis reveals that most farmers of the community raise hogs, dual purpose cattle, and chickens, and grow corn, oats, wheat, alfalfa, and a mixed pasture. Immediately we have before us the major portion of what should be included in our curriculum, especially the production phase of farming. Each of these enterprises

affords us a possible "home project" for the vocational student, to become the backbone of his "six months of supervised practical work."

The third question is:

Of what does each of these farm enterprises consist; or in carrying on a given enterprise, what does the farmer of this community do? Let us take corn as an illustration. This enterprise involves certain jobs. The word job is used in this discussion to designate tasks to be done. If we think of the enterprise as a project we may think of these tasks as project jobs. In preparing teaching plans, each project job may become a lesson unit.

If we think of them in their order of occurrence, the main jobs of corn growing may be listed as follows: The first you may say is a problem that must be solved before the enterprise is started. Perhaps so, but for convenience it is here listed as one of the project jobs. The jobs follow:

1. Choosing the enterprise.
2. Selecting the seed.
3. Storing the seed.
4. Selecting the field.
5. Preparing the seedbed.
6. Preparing the seed.
7. Planting the corn.
8. Controlling detrimental factors.
9. Cultivating the corn.
10. Harvesting the corn.
11. Storing the corn.
12. Marketing the corn.

In every vocation, there seem to be two kinds of work: work that requires a maximum of judgment and a minimum of manipulation or "doing with hands", and work that requires a maximum of manipulation and a minimum of judgment. The first we may call management problems, and the second operative jobs.

Since the foregoing jobs are broad enough that when all the smaller jobs of the enterprise have been listed and classified, each will fall under one or the other of them; and since also all problems of management may be listed and classified under one or the other of them; some states, including Nebraska, have thought it best, in their publications involving this method of analysis, to designate them as "management jobs." My own opinion at the present time is that this classification is open to criticism. It occurs to me now that a sounder procedure would be further to analyze each of these jobs into their problems of management and their subsidiary operative jobs.

The next question that the instructor must ask himself is:

Of what does each of these jobs consist; or, carrying on any one of these jobs what does the farmer actually do? In doing the first so-called job, "choosing the enterprise," he must be able to answer such questions as (a) Is corn-growing a profitable enterprise for me to pursue considering such factors as climate, soil, topography, location, equipment, finances, etc.? (b) What proportion of the farm shall I devote to corn-growing? Other questions may present themselves, all of which are evidently problems of management.

Having listed all the operative jobs and management problems of the enterprise and classified them, the next question which the instructor must answer is: What knowledge must be taught for each job or problem? Management problems, as we have already indicated, are in reality matters of judgment. To solve them, therefore, involves the collection of facts bearing upon the problems, weighing their relative values, and arriving at a solution. These facts and the solution would constitute the content of curriculum in so far as it involves management problems.

In our attempt to determine the exact content of curriculum for both operative jobs and management problems, the modified Richard's formula of Federal Bulletin, No. 52, Trades and Industries Series, has suggested to us a clue. This formula, it will be recalled, is

$$E=M+(T+I)$$

E is defined as "equipment, skill, and knowledge"; M as "manipulative skill"; T as "trade technical content"; and I as "general trade content." In our application of the formula to the operative jobs of farming, it appears that it needs further modification.

Let us consider the formula: $M+T=S$. M we are defining as manipulation, the "doing things"; T is the technical knowledge absolutely necessary to manipulation; and S is manipulative skill. M can not be taught. Instruction may help, but it can not do the real thing.

If we stop here, our teaching is nothing more than training ordinary workmen, "hired hands." And the student who goes on no further will forever remain ordinarily in the "hired man" class. It is necessary, therefore that our formula be further extended.

$M+T+A=VE^*$. M and T are already defined. A is auxiliary knowledge, which, altho not absolutely necessary to manipulation, is desirable because the possession of it may reduce the cost of production or may make manipulation easier or more interesting for the workmen. These three, M, T, and A, would seem to constitute the legitimate field of vocational education (VE).

It is evident, I think, that for management problems M is at a minimum, often approaching zero; but for operative jobs M is at a maximum. It is also evident, I think, that A includes all of the so-called related subjects of most "state plans for vocational education (VE).

*A modification of $M+TK+AK=E$ in "Foreman Training and Factory Management" by L. A. Hartley.

POULTRY PROJECTS

E. G. Shaad, agricultural instructor at Deer River, Minn., gives the following account of his poultry projects:

"In 1918-19 four boys carried out poultry projects. These have resulted in one flock of Park's strain Barred Rocks and one flock of Rodman's strain rose-comb Rhode Island Reds.

"In 1918-19 Carl Backlund raised 33 chickens of the Rodman strain of reds, costing \$1.73 each, at a total profit of \$7.96. He sold these to his brother Oscar, who in 1919-20 raised 113 chickens, costing 65 cents each, at a total profit of \$164.63. This is now one of the best flocks of poultry in this section, and is laying as well as a flock of white leghorns on the same farm.

"Eleven boys started poultry projects and ten finished them. All birds are purebred, of a better strain than is generally found in this locality.

The following figures are significant: 826 eggs were set in incubators at school and 379 chicks were hatched, or 45.88 per cent; 564 eggs were set at home under hens and 253 chicks were hatched, or 44.86 per cent; 468 chicks were raised out of 569 hatched, or 82.30 per cent; the cost per chick raised was \$1.32. The value per chicks raised was \$1.85. Total value of all projects was \$864.08. Total cost of all projects was \$617.90. Total profit on ten projects was \$246.18."

THE FARM SHOP

There has been a consistent demand among the farmers of this community for a course in Farm Mechanics, and in order to meet this demand we have tried out a shop designed to fill this need.

Our plan is to keep the shop as an ideal for a farm shop, so expensive equipment is lacking, but every piece useful.

The boys built the work benches and tool racks, and the tools purchased are the result of suggestions by the boys and their fathers during the summer.

Our tools are as follows:

Machinists' vises	Post drill
Monkey wrenches	Screw plate
Engineers' wrenches	Hack saws
Ball Pein hammers	Bolt cutters
Blow torches and	Wire cutters
soldering coppers	Calipers
Common cold chisels	Belt punches
Cape chisels	Punches
Screw drivers	Pipe wrenches

We borrow new gasoline engines for the study of the various types of engines, but for actual work in babbiting, seating of keys, etc., we own several second-hand engines. In this way, if castings are broken or other accidents occur, it can be charged to experience for the boys with a minimum of actual cost. After this work the boys may bring in their own engines to be overhauled. Correlated with the engine work is work with pulleys, line shafts, belts, and the cost of operation.

Some of the work we are doing is wire work, wire splicing, rope work, soldering, concrete work, and study of farm machinery.

From the interest the boys have shown, and from the reports of their work at home, we feel the shop is already a success.

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