

THE VISITOR

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CHOICE AND ARRANGEMENT OF SOILS SUBJECT MATTER

[The course in soils is one of the weakest if not the weakest part of the agricultural curriculum. Yet the principles underlying the management of the soil are fundamental in the study of agriculture.]

Some light will be shed on the reason for the weakness of the soils course if we trace the development of the content from its origin. The science of soil depends largely upon geology, chemistry, physics, and biology. As ordinarily taught in colleges of agriculture the soils course has been largely built around these sciences. Moreover there has existed a tendency to group what has been taught around certain principles of the natural sciences, for example, capillarity. This same arrangement of subject matter has been passed down to high school classes in vocational agriculture. Many teachers of agriculture have assumed that college notes are safe guides and that soils can be taught in no other way. Even the texts used in secondary schools follow suit. In one soils text, considered one of the best for secondary schools, may be found the following chapter headings: "Soil Formations," "Texture and Structure of Soils," "Organic Matter," "Soil Water," "Plant Food Materials in Soils," "Soil Air and Soil Temperature," "The Germ Life in the Soil."

Such an arrangement and choice of subject matter is open to serious objections. In the first place, secondary school pupils do not have the necessary foundation in natural sciences, especially if the course in soils is given the first or second year. While this arrangement may be a logical one for soil specialists, it certainly is not logical for the high school boy.

Even tho the boy could be trained in the natural sciences before studying soils, other objections persist. The question arises, should we select such illustrations and soils data as will

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A PROJECT PROBLEM

At a recent conference of agricultural teachers the question was asked whether one purebred heifer calf or four grade calves would make a more desirable project. No conclusions were reached, but a few suggestions to the many teachers who are facing this same problem may be of interest.

There are really three problems involved instead of one. (1) Should an animal project consist of purebred stock. (2) Is one calf a large enough project. (3) Does the raising of a calf constitute a good dairy project or should it include part, at least, of a lactation period. The choice of a purebred animal, the size of the project, and the age of the animals all lead us to the same difficulty, i.e., the amount of initial outlay. In many cases this difficulty can be met by a change in the planning of project work by the teacher of agriculture.

It has been assumed that we should plan our projects for the current year only. Such planning obtains good results with a crop project if the crop is an annual one. Such planning, however, strikes a blow at the animal project. It is all but impossible to conduct successful animal projects in six months or even a year except in the case of quickly growing animals like poultry or hogs. Even poultry and hog projects would be much improved by a longer period of time.

The "current year plan" is one of the greatest obstacles to larger, better projects. A more satisfactory plan would be to map out for the boy in co-operation with the parents, when he enters the agricultural course, his projects for the entire course. His projects would start at whatever time would best serve the purposes of teaching. This plan offers difficulties. For example, very close coöperation with the parents is necessary and not always possible. Again, some changes in a long time plan, which cannot be foreseen, will be necessary.

Let us consider, however, how such a long time plan will affect animal

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STAFF

A. V. STORM
D. D. MAYNE
A. M. FIELD
W. P. DYER
F. W. LATHROP
SHERMAN DICKINSON
G. F. HOWARD
T. A. ERICKSON
GEORGINA L. LOMMEN

SERVICE TO YOU

For various good reasons it has been impossible to issue the Visitor at the usual time. We are sorry it was delayed, but trust that the material, when it finally reaches you, will be of enough value so that you will forgive us.

We are planning that the issues beginning with December shall come out on or near the first of each school month. We want The Visitor to be full of Service to You. With this in mind each number will have a special theme or topic. These will deal with actual practice and be written with the idea of helping you in your work.

The staff is particularly anxious to know of your problems and your successes. Let us hear of any particularly good work, classroom, laboratory, or project. Only through co-operation can we hope to improve the teaching of agriculture in Minnesota. Help us make The Visitor the medium for the exchange of good ideas.

NEW INSTRUCTORS FOR AGRICULTURAL EDUCATION

Readers of the Visitor will notice the names of F. W. Lathrop and Sherman Dickinson as new members of the faculty.

F. W. Lathrop, assistant professor, graduated from Yale University in 1911 and later completed the work for a Master's degree in agriculture at Cornell University. After teaching vocational agriculture for two years in the high

school at Canadaigua, New York, and for three years in the State School of Agriculture, Cobleskill, New York, he returned to Cornell, where he registered for work toward the Ph.D. degree.

During one summer he conducted a course in farm crops at Cornell University for men preparing to teach that subject in high schools. On the completion of his thesis he will receive the degree of Doctor of Philosophy in Agricultural Education from Cornell University.

Sherman Dickinson, who will be remembered as a former member of the department, returns from the University of Idaho where he held the position of Professor of Agricultural Education and Principal of the School of Agriculture.

Mr. Dickinson received his B.S. degree from the College of Agriculture, Ames, Iowa, and the degree of M.A. in Agricultural Education from the University of Minnesota. He has had several years of experience in teaching agriculture in Minnesota and has had an active part in the development of agricultural instruction in secondary schools of the state.

In addition to his work in the Department of Agricultural Education, Mr. Dickinson has registered for work toward a Ph.D. in Education.

AGRICULTURAL TEACHERS IN DISTRICT CONFERENCE

The first district conference of superintendents and agricultural teachers was held at Pine River October 28, under the direction of Paul Calrow, state supervisor of agricultural education.

The morning was spent in visiting classes in agriculture and discussing project work with the boys.

In the afternoon the following topics were discussed:

- a. Professional improvement
- b. Shop work for agricultural students
- c. Part-time instruction
- d. Report of agricultural equipment questionnaire.

E. M. Phillips, of the State Department of Education, and A. M. Field, of the Department of Agricultural Education of the University, took part in the discussions.

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develop certain stereotyped principles of natural science or should we develop such principles of natural sciences as will contribute to the most efficient management of soil? In other words, shall the "management of soils" or "certain scientific principles" become our base. From a vocational viewpoint, these stereotyped principles should be tributary and not determining.

If we accept the principle that subject matter should be taught in the form in which it will be used by the learner, the present arrangement of subject matter is faulty. The boy will not meet the problem of soil water on the farm, as such. His need for knowledge of soil water will come when he faces the problems of plowing, cultivating, draining, rolling, harrowing. Then these problems should be the basis around which to group scientific principles. Our major units would be those problems which the grower of crops meets from the time when he decides on which fields he will grow his crops during the current season until the following fall or winter. For Minnesota conditions, these main problems would be:

1. Adaptation of soil to certain crops
2. Fertilizing the soil
3. Draining the soil
4. Sweetening the soil
5. Supplying organic matter to the soil
6. Plowing
7. Fitting
8. Cultivating
9. Maintaining fertility.

These problems might not always occur in the same order. In a given community additions or subtractions may be necessary. These main topics are given merely to illustrate the principle that subject matter in soils should be selected according to the needs of the man who grows crops.

The idea that soils can or should be studied apart from the study of farm crops and horticulture is fast dying out. We are now convinced that soils and crops should be correlated. The intermingling of soils and crops subject matter is not necessarily correlation, however. Real correlation exists when soils subject matter is presented as an outgrowth of some phase of crop production. For example, if we study alfalfa, we will study the problem of sweetening the soil because instruction in this subject is needed at this point.

Such an arrangement tends to insure that the more essential principles of soil management will be presented and that a minimum of useless subject matter will be retained. In addition, the soils subject matter is taught when it is needed and can be applied, which is an important factor in effective teaching.

The crops studied in a course in vocational agriculture will usually be those most important in the community. This suggests that the necessary subject matter in soils may be found in the community; in fact, the soil practices in the community should be an important guide. The teacher of agriculture should not necessarily limit the soils course to the soil practices in the community. However, his reputation for soundness depends upon conformity to local practice until he can prove the worth of any variations to the satisfaction of at least several good farmers in the community.

Briefly the steps in adjusting a course in soils to the community are:

1. Determine the aim of the teaching of soils. This would usually be to familiarize the student with the best local practice and the underlying principles, and also to insure that he masters the skills which are involved.
2. Analyze the subject into workable and appropriate units. These units have already been suggested, i.e., the soil problems which the farmer must meet.
3. Collect in the community information as to local practice, (good and bad) grouped about the units which have been selected. Obviously, some kind of a survey is necessary.
4. The best experimental work in soils should be included but should be distinguished from community practice.
5. Select the most important subject matter under each unit or problem in the light of the time available and the teacher's estimate of the ability of the class to cover the ground.

The teacher should lay emphasis on the underlying principles which may be developed from a study of local practice, books, bulletins, and other sources. Such principles, developed from facts for the most part familiar to the students, will not escape from them as easily as will the principles of natural science taught deductively but not always applied to farm conditions.

F. W. L.

TEXTS IN AGRICULTURAL ECONOMICS

It is necessary to emphasize the often repeated statement that the farmer is no longer merely a self-sufficing producer. His relations to the rest of society are continually becoming more complex; especially his economic relations. The increasing interest in the farmer's economic problems will be more and more reflected in the vocational agricultural curriculum. A new problem is presented to the teacher of agriculture.

The history of agricultural economics can be briefly traced through an examination of the texts which have been used for the study of this subject. Fairchild's *Rural Wealth and Welfare* is the pioneer text, written in 1900 when agricultural economics was in its embryo stage. As the sub-title indicates, it is an exposition of economic principles illustrated and applied in farm life and not really agricultural economics.

The first widely accepted American text, *Agricultural Economics*, was written by H. C. Taylor in 1905. Several features of this text show that attention was being given at that time to the economic phases of agriculture, especially European agriculture. An exhaustive account of land tenure in England is an example. There is evidence in this text that a start had been made in the study of such agricultural economic problems in the United States as land tenure, prices of agricultural products, and size of farms. No distinction is yet made between farm management—the individual aspect of the farm business—and agricultural economics—the social aspect of the farm business.

Carver, in his *Principles of Rural Economics*, written in 1911, distinguishes between farm management and agricultural economics. Previous to that time farm management had begun to develop rapidly. A chapter on farm management is included in the text. In addition there is an extremely valuable chapter on the history of agriculture, and one on the social problems of farm life, which is strictly speaking, rural sociology. The remainder of the text is agricultural economics, not widely different from Taylor's text.

The new edition of Taylor's *Agricultural Economics* (1920) shows a marked increase in data available on this subject. The research which has been conducted in agricultural economics is drawn upon freely. Taylor has enlarged the scope of what he

considers agricultural economics as compared with his old edition. He has added a chapter on the social side of farm life, has included some material which may be designated as the ethics of farm life, and has incorporated a large amount of farm management material.

The publication of Boyle's *Agricultural Economics* in 1921 shows clearly the progress that has been made in the last few years. The line has been distinctly drawn between agricultural economics and farm management. In this respect Professor Boyle's conception of the field of agricultural economics is different from that of any of the other writers mentioned. For example, the titles of the following chapters are scarcely mentioned in the other texts if at all: Transportation, Insurance, Cold Storage, The Agricultural Press, Farmers' Organizations, State Aid, The County Agent, Foreign Competition. Professor Boyle has shown that agricultural economics is such an enormous subject that it may have to be further subdivided. He does not make a clear distinction between agricultural economics and rural sociology as shown by his inclusion of topics like farmers' organizations.

A striking feature of this text is its abundance of facts and figures. These, together with a large number of quotations from authorities, make the author's conclusions convincing. The large number of references, included at the end of each chapter, make this text a valuable guide for the further study of certain topics. F. W. L.

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projects. It will meet more effectively than any other means the difficulty of initial outlay. The boy will purchase his hatching eggs, his calves, pigs, or lambs at least a year before his animal husbandry year begins. He will receive enough instruction, however, during the previous year so that he can successfully rear his stock. When the animal husbandry year starts, the boy will have a laying flock, or livestock which has partly matured. The outlay, however, will have been for eggs, calves, lambs, pigs. If this plan had been followed in the case of the boy with the four grade calves, it would have been possible with the same initial outlay to purchase two or more purebred calves which could have freshened during the animal husbandry year. F. W. L.