T H E S I S

ADAPTING VOCATIONAL AGRICULTURAL INSTRUCTION TO THE INDIVIDUAL NEEDS OF PUPILS

Submitted by

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for the Degree of Master of Science

Colorado Agricultural College

Fort Collins, Colorado

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THIS THESIS HAS BEEN READ

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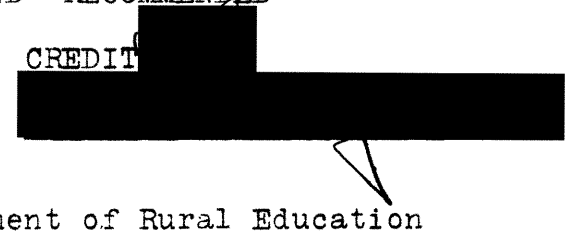

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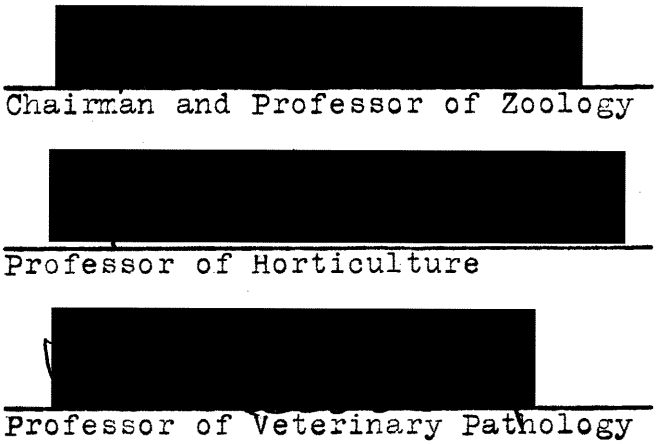

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B Y

LINNE D. KLEMMEDSON

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ADAPTING VOCATIONAL AGRICULTURAL INSTRUCTION TO THE INDIVIDUAL NEEDS OF PUPILS

CHAPTER I

INTRODUCTION

A. The Problem Stated. The problem attempted is the formulation of a program for adapting vocational agricultural instruction, in secondary schools, to the individual needs of the pupils.

This major problem involves the solving of the following minor problems:

1. Determine the need for placing vocational agricultural instruction upon an individual basis.
2. Determine the guiding principles and assumptions for individualizing vocational agricultural instruction in secondary schools.
3. Determine an effective organization for putting the instruction upon an individual basis.
4. Determine the school facilities necessary for carrying on individual instruction.
5. Determine the procedure to follow in conducting individual instruction.
6. Determine what class records to keep.
7. Determine adequate tests for measuring the effectiveness of individual instruction.
8. Determine the duties and abilities of

teachers for organizing and conducting individual instruction.

9. Determine the disadvantages and dangers of individual instruction.

B. Terms Defined. State Boards for Vocational Education are set up in each state by legislation within the states accepting the provisions of the Federal Vocational Education Act, commonly referred to as the Smith-Hughes Act. The act has for its purpose the encouraging of vocational instruction in agriculture, trade and industries, and home economics in the states of the union. Such instruction is encouraged by grants from the federal treasury, expended in cooperation with the states.

"Vocational agriculture," strictly speaking, means agriculture followed as an occupation for livelihood, not as an avocation, as investigation, or for any other purpose. Vocational education in agriculture as defined in the Federal Vocational Education Act must meet four specific requirements: (1) It shall fit for useful employment; (2) It shall be of less than college grade; (3) It shall be designed to meet the needs of persons who have entered upon or who are preparing to enter upon the work of the farm, (4) Provisions shall be made for at least six months of directed or supervised practice in agriculture. Such expressions as "vocational agricultural instruction," or "teaching of vocational agriculture," imply teaching that meets the above definitions. The word "vocational" is used to emphasize the departure from the academic type of agricultural instruction.

"Vocational agricultural pupils," are those enrolled in vocational agricultural schools or classes under public supervision or control, authorized by the State Boards for Vocational Education, with the approval of the Federal Board for Vocational Education.

By "individual needs," are meant those educational needs which grow out of the pupils life experiences in purposeful activities and enterprises, in conducting his supervised practice or in the doing of real farm jobs.

"Individual instruction," is a method of teaching whereby the teacher may meet and work with pupils as individuals while the other members of the class are engaged upon profitable class work.

"Individualization" is a socializing and co-operative process in which the teacher and the needy pupil work together in order that in the end the pupil may better fill his place, first in school and later in society at large.

C. Origin of the Problem. In the Twenty-First Year-Book, on "Intelligence Testing," and in the Seventeenth Yearbook, Part II, published by, The National Society for the Study of Education, much material was presented to demonstrate the striking range of individual differemces found in the native capacity and the educational achievements of pupils. No one at all conversant with the facts there set forth can avoid the conviction that mass instruction of pupils leaves much to be desired pedagogically.

One method of meeting in part the difficulties of mass instruction was extensively treated in the Twenty-Third Yearbook, Part I, on "The Education of Gifted Children," and in the Nineteenth Yearbook, Part II, on "Classroom Problems in the Education of Gifted Children." The desire to carry differentiation still further has resulted in a variety of experiments to individualize instruction in the general educational fields. The success of these experiments have stimulated the desire to individualize vocational agricultural instruction. Before this desire can be realized a program for individualizing vocational agricultural instruction must be set up from precedent established in general education and trades and industrial educational fields, along with such meager data derived from experiments in the vocational agricultural field.

D. Reasons for Making the Study. If we accept the thesis that education should assist people to do better the desirable things that they are going to do anyway, an interesting vista opens up to the school man. Here at least is a clue as to appropriate stuffs for the curriculum maker- the desirable things that people will eventually do, quite regardless of what we attempt in the way of traditional programs of education, or more over without regard for our own particular pet philosophies of what education should comprise and attempt to accomplish.

Men are going to work with their hands, and, nearly half of them, since they live in rural communities or in the country, will have much to do with agricultural matters. Our thesis challenges us with the question as to what we will have our schools do to lead our rural youth to understand, interpret, and in many cases, learn the specific knowledges and skills of agricultural industry?

The agricultural industry is not one where uniform or standard practices can be entirely used on every farm. Every farm differs from every other farm in some respect, as to fertility of the soil, the lay of the land, in degree of productiveness and physical development. Every farmer is confronted with a variety of specific problems peculiar to his own farm. These specific problems arise from the fact that every farmer's conditions are different. Conditions vary in; the kind of crops grown, the system of farming used, the kind of livestock kept, the amount of working capital, the kind and amount of equipment available, the marketing facilities, and in many other respects too numerous to mention.

Farmers vary widely in their capacity to solve these varying problems under their various conditions. They vary in native capacity and in farming knowledge and skill.

The wide spread use of intelligence tests and achievement tests, in rural schools, during the past few years has made every educator realize forcefully that rural children vary greatly as individuals and that any one school

grade contains children of an astonishingly wide variety of capacity and achievement.

It has become palpably absurd to expect to achieve uniform results from uniform assignments and mass instruction given to a class of widely differing individuals. There has, therefore, awakened a desire to find some way of adapting vocational agricultural instruction to the differing individuals who attend vocational classes.

Conclusions arrived at from experiments conducted with individual education in the general educational, trades and industrial fields add support to attempts to adjust vocational agricultural instruction to individual needs.

Some of these conclusions and theories are:

"The progress of our day in the science of education is nowhere more evident than in the field of individual differences. Here is clear recognition of the fact that it is the individual child who is to become the citizen, the leader, or the criminal, the public charge; and that both the material and spiritual values of the age will depend in a large measure upon the habits and attitudes set up in the schools on the part of each individual child.

But public education is not keeping pace with the proved outcomes of research in this field. Mass methods are still in use, although they have been shown to be not only unintelligent, because impossible of specific direction, but actually brutalizing in their effect upon both pupil and teacher." (1, A.A.Sutherland, Individual Differences Among Children, p. 1).

"Every experiment systematically preformed yields some data regarding the modifications of abilities by the experiences of home, school, laboratory, or playground. Differences of motor skill, sensory discrimination, perceptual abilities, while they must have an inherited basis, become useful when recognized and skilfully employed. Certain principles important for education emerge from all these studies, and may be thus formulated:

1. No group has yet been found in which the individuals composing it possess equal amounts of any one ability.
2. Performances vary so greatly as to indicate that no single requirement is adequate as a stimulus to a majority

of the group.
3. To study the development of a learning process it is absurd to set up as a standard a definite quantity of performance and expect each member of the group to accomplish just that amount and no other." (1, p. 5 - 6).

"The conclusion is certain that individual differences are due in some degree to inheritance and are magnified by experiential modifications and the resulting mental organization. The new science is making steady progress with quantitative methods in dealing with problems of great perplexity. The development of citizenship must take account of the actual facts in this wide range of raw material, recognize the fact that children differ in inheritances, general and specific, and in the will to use and further develop the modifications of abilities. The first task in intelligent education, then, is to discover the amount of development which has already occured in any bit of raw material which is to be transformed into effective citizenship; The second is to discover a means to develop greater ability; and the third is to justify the methods employed by a demonstration of the amount of development actually achieved." (1, p. 9).

"Mastery of the textbook has been taken as equivalent to ability. The course of study in the past has been uniform, thanks to manufacturers of textbooks. There are, indeed, courses of study which consist merely of lists of topics from the textbook showing the number of pages to be covered in a given time. The administration of the course of study has been uniform also in the sense that every pupil was expected to master the same portion of it, to approximately the same degree of perfection, and in the same time." (1, p. 18 - 19).

"As with the curriculum, the most significant need in the grades is for a flexible organization to suit the needs of pupils. If it were possible to use a textbook five minutes in the case of one pupil and five days in the case of another, this need could perhaps be met. But this question, overwhelming without materials for practice exercises and tests of the immediate material by which pupils can check their own mastery and progress, is more than a textbook problem." (1, p. 20 - 21)

"Pupils differ in the amount of time required of the teacher. Certain pupils, if allowed to work uninterruptedly, will forge ahead at a rapid pace; but other pupils need aid, the more or less developed their abilities. Each pupil will grow at his own rate, relatively to his development and effort, if permitted to do so. The present methods of class organization prevent growth along some lines in some of the pupils and turn growth in undesirable directions in others." (1, p.23).

"The primary consideration in schools heretofore has been ease of administration, not efficiency of instruction. Ease in organizing and managing the course of study, ease in handling and directing the use of textbooks, ease in organization of classrooms, have made possible the administration with equal ease of larger and larger classes. The quality of the citizen who is a product of this maladjustment of the schools depends too largely upon influences outside the school, and is not sufficiently influenced by the school training." (1,p.29).

"The more carefully the processes and goals of education are analysed and made clear, the more the fact appears that individual differences are unavoidable and invaluable. By means of them the public schools should be able to keep up a wholesome supply of the many kinds of persons needed to carry on the complex work of civilization, all of these different individuals with trained abilities in a state of healthy and buoyant readiness to perform their appropriate tasks." (1, p.29).

Kilpatrick, in Education for a Changing Civilization (2, p. 49) says, "Things are changing. So every one agrees. As to trend of change, there are many minds." . . . . "This fact of permanent, rapid, and increasingly rapid change introduces into the world a new and extremely difficult problem. The material advance in civilization threatens to outrun our social and moral ability to grapple with the problems so introduced. Already one significant result appears. Our youth no longer accept authoritarian morals. We must develop then a point of view and devise a correlative educational system which shall take adequate account of this fact of ever increasing change. Otherwise civilization itself seems threatened."

Of the demands on education, Kilpatrick says, "Our changing civilization clearly makes new and far-reaching demands on education. Some of these have already come before us but, so far, rather in general outline than in specific detail." . . . . . "Until recently the school, itself resisting change, has thus been on the whole a bulwark against social change." . . . . . "not only must the schools be brought abreast of changes already effected in our social life, but much more, our basic theory of education must be so reconstructed as to include as an essential determining element the recognition of the permanent fact of rapid and increasing change. This has not yet been adequately accepted as the necessary basis for the management of our schools."

. . . . . .

"One part in the reorganized outlook is to give up

our hitherto professed right to fix our children's thinking. Probably the most useful way of conceiving education is to take it as the process by which we acquire our ways of behaving. This, of course, takes the term "behaving" in its most general and inclusive sense, to include attitudes and beliefs as well as the outward ways of responding." . . . .

"Education has been the process by which those at present in charge of affairs determine what the rising generation should think and do. Probably at this moment in this country most parents have never doubted their right and duty so to determine their children's intellectual and moral futures. . . . . This right of parents or other grown-ups to determine what children shall think must be essentially revised. In the new situation of ever increasing change, we cannot, try as we will, foretell what our children will need to think, while with the new philosophy of change and its ethics those who are at present in authority have no such right of control. Our duty is so to prepare the rising generation to think that they can and will think for themselves, even ultimately, if they so decide, to the point of revising or rejecting what we now think. Our chosen beliefs will have to stand this ordeal. If they are worthy to survive, the probabilities are that they will stand this test. . . . . We must free our children to think for themselves. Anything else is not only to refuse to accept the facts as to the unknown changing future, but is at the same time to deny democracy and its foundational demand that we respect other people, even our own children." . . . .

"This older education has professed to prepare for adult life. Its failure has thus been twofold. It has not prepared for the present adult life, and it has altogether ignored the unknown future adult life. Instead of preparing for life as it now is, it has contrariwise too often taught only out-of-date and merely conventional subject matter. . . . . Instead of preparing as best it could for the shifting unknown future, this older education has in effect pretended that the future will be like the present. . . . . Accordingly, to such of the older limited stock of precise subject-matter as should survive from this generation to the next there must be added certain more generalized methods and attitudes of attack that especially fit for meeting novel situations, and all must be directed, as nearly as we can foresee, in conformity with the demands of the new situation." (2, p. 62)

"And what outcomes are we to seek? . . . . On the one hand, our young people must build such dynamic outlook, insight, habits, and attitudes as will enable them to hold their course amid change. To do this, they must, as they grow older, increase in the ability to stand on their own feet — to decide matters wisely for themselves. We, their elders, must in the

end renounce any and all claim to sovereignty over them. No longer can one generation bind the next to its solutions. On the other hand, our young people must learn such general and flexible techniques as promise best to serve them in that unknown future. We cannot know their precise problems, still less the answers to their problems, But we can in some measure forecast the general run and outline of their problems. We can give them effective access to our stock of useful data. We can in particular give them an intelligent control over our best methods of attack, including the method of criticizing methods. All this in order that the rising generation may be as effectively prepared as we can help it to be for an unknown and shifting future which confronts them.

Such are the demands made on education by our rapidly changing civilization." (2, p. 85-86).

Kilpatrick points out that we are confronted by continual changing civilization which puts new demands on education. This in turn means the stressing of a new and different kind of learning. This new kind of learning in turn demands a different kind of school and a new method of instruction.

As to the new kind of school, Kilpatrick says,

"First, it must be a school of life, of actual experiencing. No other one could furnish the needed learning conditions. Second, it must be a place where pupils are active, where pupils enterprises form the typical unit of learning procedure, for purposeful activity is the typical unit of the worthy life wherever lived. Third, there must be teachers who, on the one hand, sympathize with childhood, knowing thus that growing can take place only through progressive pupil activity, and who, on the other hand, see and know that growing is growing only as it leads to ever widening effectual control – who know that growing, judged thus by control, is effected only as better and more adequate ways of behavior are in fact progressively acquired, and that for this the race experience and accumulation is an invaluable treasury and source of supply, neither finished nor perfect, but yet available for fullest use." (2, p. 112-113).

Of the new curriculum, Kilpatrick says.

"We face thus a new conception of the curriculum as consisting properly of such a succession of school experiences as will best bring and constitute the continuous reconstruction of experience. Such a conception seems best to fit the demands of our dynamic changing civilization. . . . . We now face an unknown future. We must prepare in

a different fashion. It is the active use and adaptation of the old in and for new situations that we must stress. As teachers we must make ourselves progressively unnecessary. The present must honestly intend to yield sovereignty of control to the rising generation. Such a need the new conception of subject-matter and curriculum are meant to supply. . . . . It is life directing itself in the light of the past but not subjection to the past . . . . Growth . . . . consists in taking more and more of life into account as decisions are made. . . . . .

". . . . this new curriculum consists of experiences. It uses subject-matter, but it does not consist of subject-matter. The old curriculum consisted of subject-matter set out to be learned for giving back on demand. The essence of the new curriculum is the child activity at work needing for his present experiences better ways of behaving." (2,p.123-125)

"Now experiences, while they can in some measure be foreseen and steered, nevertheless-- if they are truely educative-- can if ever be ordered outright. The curriculum then must have ready in advance much that will be used, at times information, at other times sources of information, at still other times specific procedures available as occasion demands. At all times will help in directing affairs, but the aim will be the building up of pupils. So that the teacher will most plan how the pupils may with maximum feasible self-direction pursue ends that so appeal as to call forth maximum energy and resource. It is this and not the covering of specific ground or the acquisition of specific subject-matter that will engage the teacher's time and endeavor. This kind of curriculum promises most of help against that day when the individual, become adult, must face the worlds problems ever coming out of that unknown future. This seems the only way of learning to meet that unknown future." (2,p.125-126).

"We cannot teach consistently unless we know the goal. . . . .we would have as goal, so far as it is embodied, that type of person who is able and disposes to think and decide for himself, think freely without the ways of prejudice, decide unselfishly, preferring the social good to any merely private good or gain. The only goal we can accept is one that values personality." (2,p. 132).

Franklin Bobbitt expresses the following views on curriculum making for the individual.

"Life is an individual affair. It is the responses of the individual himself, as conditioned by his particular nature, to the situations which provide him with opportunities and stimulations. No two persons can have identical

natures, and the disparities among persons are far greater than education has yet cared to recognize. . . . . The life of child and youth can not be planned by educational authorities, uniformly and mechanically, for a multitude of children and youths at the same time, and the plans then imposed equally and mechanically upon all. This can not be done even at school. But the major responsibility of education is so to project its influences that life is held high during the hours when one is away from school. In its details life can scarcely be planned at all except as it is planned currently and for the individual himself. In chief measure it appears it must be planned by the individual himself. Each person, it seems must have his own curriculum. He may need much assistance, guidance, oversight, and stimulation; and yet it appears that, except for very little children, and largely even for them, one must plan for one's self." . . . .

"A uniform curriculum, mechanically imposed upon all boys and girls of whatever situation, is, so far as it is effective, a clear denial of the right of the individual to initiate plans and carry through activities in which he can most fully realize currently the ends of his existence."(3,p. 45-46).

Each occupation demands its separate and special curriculum. The occupation of farming demands its separate and special curriculum. The individual differences existing among children and the failure of the traditional class method of instruction to make adequate provision for them have been recognized to a greater or less degree for many years. Individual differences among children, while disturbing to a system of education which tries to ignore them, are potentially the means by which human society may progress.

It appears that education should be administered with a view to giving individuals of what ever age the greatest possible amount of guidance for individual self direction; that curriculum-making is mainly concerned with the making of the individual curriculum for the individual boy or girl, by himself, or herself, as guided by teacher and parents.

But every one concerned in planning the individual curriculum is in need of general guidance. Also guidance is needed for instructing the individual. One needs to know in a specific way what the activities are which are involved in the conduction of individual instruction. There is need for a plan of organization for adapting instruction in each occupational subject to the different individuals enrolled.

The purpose of the present study is to set up a program where by teachers of vocational agriculture may be aided in attempting to give guidance, direction and assistance to vocational agricultural students who are individuals facing a life, that, in itself, is complex beyond description, with situations infinitely diverse and never the same for any two of them.

E. The Novelty of the Problem. The trend of the curriculum-makers appears to be toward planning the individual curriculums of children and youths.

The many studies and discussions of individual differences, individual curriculums, individual instruction and of education for individual behavior, indicates that there is a great amount of interest in these problems.

If each occupation demands its separate and special curriculum, then a study having to do with individualizing the curriculum for vocational agricultural students should be of interest to the large body of persons interested in the teaching of vocational agriculture and its related subjects, economics, history and sociology. It also may prove

Education To-Day Is Moving

From "imposition on children of adult forms of thought, feeling, and behavior"	To "goals dictated by children's interests, needs, capacities for learning and experiences, as well as by the larger demands of society."
From disregard of the individual	To "work adjusted to contribute most fully to the development of the individual."
From formal, academic, non-social standards.	To the "test of the effectiveness with which subsequent situations are met by the individual.""It is of paramount importance that the individual participate effectively in social life."
From subjective, unchecked bases of selection and organization of curriculum materials	To bases of selection and organization established by scientific studies of both children and society.
From disregard of life values	To "definite consideration of the problems of economic, political, social and individual life."
From a narrow academic content of conventional skills and knowledges	To a content that "includes important attitudes, generalizations, and an understanding of the important institutions and problems of life as well as the conventional skills and knowledges.
From mass instruction	To "provision for individual differences."
From education as "subject-matter set out to be learned, repeated, accepted ready-made, given back without adequate understanding."	To Education as "change of control of conduct, "as ways of responding to be built by the learner into his own character."
From a teacher-controlled process	To a process in which the learner, with a "maximum of self-direction, assumes responsibility for the exercise of choice in terms of life values."
From a curriculum organized by subjects	To "materials of instruction assembled from the starting point of the needs of the learner, irrespective of the content and boundaries of existing subjects."
From a criterion of value based upon adult opinion	To a "criterion of value based upon measured contributions to facilitation of 'true Learning'."
From "curriculum-revision by individuals and by subjects"	To curriculum-revision by adequate groups of specialists, and as a whole.
From "measurement by mere subject-matter tests and exam-	To measurement by tests "corresponding in type to the advances made

of interest to persons interested in individualizing other subjects.

It frequently happens, when agricultural teachers get together in discussion of problems confronting them, that the subject of individual instruction comes up. This shows that there is considerable demand for information on the subject. Several of the problems discussed by this thesis have their origin from these discussions.

The individualizing of subjects in other fields than vocational agriculture has proven successful and interesting in many cases. This has created a desire, upon the part of vocational agricultural people, charged with the administration and (conduction) of agricultural instruction, for more information relative to individual instruction. The data presented in this thesis should supply information of interest to this group.

D. Previous Studies in the Field. Up to the present time no attempt has been made to adapt vocational agricultural instruction to individual differences and needs. The subject has been considered at regional conferences and by some Teacher-Trainers, but no material has been presented for guidance of vocational agricultural teachers. The author has conducted vocational agricultural shop work on the individual basis for the past two years, and vocational agricultural subjects in class for one year.

Trade and Industrial Education under the Vocational Education Act has been conducted, in many cases, on the individual basis in teaching specific occupations.

The Twenty-Fourth Yearbook, of the National Society for the Study of Education, Part II, Adapting the Schools to Individual Differences, presents a study of the work done in the general educational field on individual instruction.

E. Sources of Data. An important source of data was found in the Yearbooks of the National Society For The Study Of Education. Much data was found in books on vocational agricultural subjects, particularly those pertaining to methods of teaching. Books dealing with curriculum-making and philosophy of education were also studied. Other sources of data are current publications, especially those pertaining to vocational training and education.

Experiments in methods were conducted in the Sargent Consolidated School for two years, both in shop and class.

Consultations were made with other agricultural teachers and those in charge of teacher-training in the Colorado Agricultural College.

F. Procedure of Making the Study. The first step in the study for adapting vocational agricultural instruction to the individual needs of the pupils was to determine the needs for such anstruction. These needs were derived from a study of the factors causing the maladjustment of schools to individuals. The next step was to determine the guiding principles and assumptions for putting instruction on the

individual basis. These were derived from conclusions arrived at from experiments in other fields of education and from studies of curriculum-making. The methods of organization and presentation of subject-matter were built up from guides furnished as the result of similar work done in other fields of education. Methods of keeping records and testing were derived from present practices in the vocational agricultural field along with adaptations from other fields of education.

CHAPTER II

THE BASIC NEEDS FOR PLACING VOCATIONAL AGRICULTURAL INSTRUCTION UPON THE INDIVIDUAL BASIS

A. The Problem of the Chapter. The problem confronting us, before we can set up a program for individual instruction in vocational agriculture, is to determine what the basic educational needs are for placing vocational agricultural instruction upon the individual basis.

B. The Relation of Vocational Agricultural Education to General Education. In approaching the problems of education, one must distinguish clearly between general education and occupational education. While they differ endlessly in their details, yet, stated in general terms they are much the same for all properly educated individuals. This education along lines common to most all, or normal persons, we call "general education" Against this general education of human beings as such, there is the specialized training for efficiency in performing the activities of a specific gainful occupation.

Both types of education are governed in many respects by common fundamental principles of education. A brief statement, concerning some of the more important principles and conceptions of education, as set down by prominent educators, is a necessary preliminary to a discussion of any educational problem.

B X

1. What is Education?

(a) "Education is the result of experiences

whereby we become more or less able to adjust ourselves to the demands of the particular form of society in which we live and work." (4, Prosser and Allen, Vocational Education In A Democracy, p. 5).

(b) "Education is to prepare men and women for the activities of every kind which make up, or which ought to make up, well rounded adult life." (Bobbitt, in How to Make a Curriculum).

(c) "Education concerns itself with life, to make life better. . . . . Education, then, is desirably such a process of living as remakes life. Remakes it not once nor occasionally at long intervals, but if possible continuously remakes it." (3, Kilpatrick, p. 131).

(d) "Hence education means the enterprise of supplying the conditions which insure growth, or adequacy of life, irrespective of age." (John Dewey, in Democracy and Education).

(e) "The chief aim of education is to teach pupils to do better the desirable things that they will do anyhow. This is interpreted to mean both those desireable present activities and assured future needs." (Committee on Curriculum reconstruction for the Rural Schools of Colorado).

(f) "The goal for education is to continue and enrich this life by better thoughts and act, and this in turn is education. Education thus is life and for life." (2, Kilpatrick, p. 134).

(g) "Education may be very largely a process of natural growth." (6, Bagley and Keith in An Introduction to Teaching, p. 38).

2. What is Teaching?

(a) "To stimulate, encourage and direct learning is the soul and substance of the art of teaching." (6, Bagley and Keith, p. 27).

(b) "Teaching as the direction of growth.-- From the point of view that emphasizes education as growth, the work of teaching becomes primarily that of directing growth,-- of providing the right kind of stimulus at the time most favorable for the exercise that will promote growth. Thus the teacher, in place of being a taskmaster who makes arbitrary requirements and then forces the laarner to meet these requirements, becomes a guide and counselor, ever on the watch for signs that the learner is ready for this or that type of educative experience. When the child evinces a desire to learn, the teacher is there to help him realize this desire in the most effective way." (6, p.42).

(c) Teaching goes hand in hand with education as the art of adapting the experiences of the race to the capacities of the individual.

3. What is Learning?

(a) "Learning is primarily a process of forming clear ideasthat will serve to guide and control behavior or conduct."

(b) "Repitition is usually necessary to perfect and crystallize learning, but repetition to be most effective must mean also a further clarification or refinement of ideas."

(c) "Learning, therefore, is essentially a mental process. Generally speaking, when mental activity ceases, learning ceases. The learner must percieve, he must form images, he must remember, he must think, he must consciously apply what he thinks." (6, p. 33 - 34).

4. What are the Materials of Education?

(a) "Generally speaking, the materials of education comprise the conquests of mankind in its struggle upward. In a very real sense, they are substantial and enduring deposits of human experience, and their place and importance in education are determined very largely by the measure in

which they enable each generation to stand upon the shoulders of those that have gone before."

In the school these materials -- these products of the race -- are organized as "subjects of instruction" or school studies." (6, p.53).

5. What is Mind and Its Development?

(a) "The higher animals learn; that is, they modify their behavior in the light of their past experiences and to bring past experience to bear upon behavior is an incontestible function of mind or consciousness. One might go farther and say with a large measure of truth that mind is the light of past experience brought to bear upon present conduct."

(b) "In the sense that it is always pointing toward something new, mind is creative as well as reproductive. Mental life - conscious life - is a continually changing life. When it ceases to change, the mental element tends to drop out, and behavior becomes mechanical. Conscious behavior is essentially experimental forward looking, controlled by the future." (6,p.132).

6. What is the Importance of Inlisting the Instincts and Inborn Tendencies of Man in the Service of Education?

(a) "Man himself has been able to work out his human destiny because he has been able to avail himself of the experiences of those who have gone before, but this very ability rests upon certain important natural or unlearned traits and tendencies."

(b) "Nature has done much to make man distinctively a learning animal."(6, p. 162).

(c) These instincts and innate tendencies, of man, have an important bearing on the problems of teaching and learning, say Bagley and Keith. The most important of their conclusions are: "(1) that man possesses an inherited equipment of tendencies

or impulses, some of which greatly facilitate the learning process; (2) that while physical heredity is important to education because it supplies this equipment and thus makes it possible to start the processes of education, the great significance of education itself lies in the fact that it represents not physical heredity but social heredity; (3) that nature's best gift to human kind seems to have been a capacity that has enabled man to transcend nature, to rid himself of the leading strings of perfected instincts, and to work out his own destiny by accumulating and refining the fruits of his experience; and (4) that each generation in all probability must pay the price of effort and struggle if it is to stand on the shoulders of its predecessors, and itself leave an enlarged heritage for those who come after."

7. How does Learning Take place?

   (a) "Practice is necessary. We do not learn what we do not practice."

   (b) "The intent of the learner counts. For behavior to be acquired, we should mean to acquire it.

   (c) "Learning may come by association. If two things happen together, emphatically enough, either one later presented to mind will recall the other."

   (d) "Learning is never single. We cannot start a child to working at any one thing and suppose that he learns just that one thing."

   (e) "Isolated learning is doubtful learning. Ideally, it would seem, the learner should not only see and feel the pertinence of what is being learned to some enterprises, he now has under way, but he should as far as feasible also get his motive for learning from felt relationship. Thus are learning conditions best met. Practice and intent go together." (3, Kilpatrick, p. 122 - 124).

8. How does Learning Enter Life?

   (a) "To understand how learning enters life, we must look at life and essentially at life outside of the school. For, in spite of

our academic prejudice, out-of-school learning still remains the essential type of learning that it has always been and, moreover, it is besides, in both bulk and importance and probably in quality, the most important learning that we have."

Out-of-school learning is the rule in both pre-school and post-school life, while during school days it surrounds and permeates school life. Indeed, at best the school merely does better what otherwise goes on just the same."

". . . . out-of-school learning comes by two roads: one by way of association, ... the other, ... as we meet and solve a situation of difficulty." (3, p. 124 - 125).

Learning enters Life in Seven Ways.

1. A practical step forward depends upon learning.

2. By a real need for learning, an actual demand for it.

3. (a) "Study", study is the effort to find and get the new way of behaving. (b) "Learn", learn means find- and getting the new way-of-behaving. The subject-matter of learning is a new way-of-behaving. . . . . What is thus learned, the subject-matter, has three aspects which always go together. A 'mental', a 'physical' and a 'dispositional'.

4. We get in an activity itself a real test as to whether learning has taken place: Can and does the child behave in a new way? Does the activity once balked now go forward?

5. By encouragement, direction, assistance and stimulation of teachers or others.

6. Through appropriation of the race experience, a child grows as an individual. Each foreward step leading to others.

7. In and from race experience the child moves forward in his career.
(Adapted from Kilpatrick's Analysis of the Case)

9. Resulting Conception of Education.

(a) "Education concerns itself with life, to make life better. To the descerning look education is not something outside of life, applied as a tool, a lever say, with which to push life forward or higher. No, education is inside of life, inherent in life. Part of every life process itself so far as life is worth while. Each step forward in living involves learning."

"To be worth while in itself, life must include learning. The zest of life is at the growing edge. Each significant learning experience in some measure remakes subsequent experience, in some measure gives a wider outlook as to the possibilities of life and deeper insight into its processes; gives also differentiated attitudes and appreciations with respect to the different new things seen and felt; gives also increased technique, power of control over the experience process, to bring it more under conscious direction."

"Education is such a process of associated living as continuously remakes life, carrying it always to higher and richer levels, not only for the individuals, but also for all whom he influences."

In the above conception aim and process are united. It guides us forward, and bids us notice what is now going on. If the present learning experience is good, it is good not only for the present but, also, for the future. If we take Kilpatrick's definition for education, "Education is the continuous reconstruction of life to ever higher and richer levels," we will be guided in the construction of a curriculum for individual education, in a changing world.

C. The World we Live In and Its Lesson for Education. We have seen what learning is, how it takes place and how it enters life to remake it. In the conception of education as the reconstruction of life we have a general statement of the aim of education as inherent in life itself. To discover other basic educational needs and to get more detailed guidance, it may be well to consider further the kind of a world we life in and ask what are its lessons for education. ". . . . if our curriculum is to do its part in remaking life, it must know actual life." (3, Kilpatrick, p.131).

We are living in a world which is continually changing. During the past hundred years the scientists and engineers have altered the face of the world, created the actions and reactions between great groups of humanity, and changed the conditions of life for the individual man by putting new power into his hands. The new uses of steam, electricity, waterpower, and oil have multiplied, manpower enormously and created innumerable problems and situations for him to solve.

Every social habit has been changed and is now being changed continuously by new discoveries made by man. One

Example will suffice for illustration. In regard to transportation - the conveying of people and goods from one part of the earth's surface to another - The next twenty-five years, or less, will alter all our methods of commercial amd social intercourse. We are only at the dawn of the air age; trans-atlantic, non-stop flights already have been made. It is not the demonstrations of speed and endurance, and records made in these flights which matter enormously to the ordinary man, but the regular service and multiplication of flights, which will alter his ways of life.

The rapidity of physical intercourse which is going on apace, so that transport and communication between all parts of the world are overcoming distance, is being accompanied by even greater development in the facilities of mental communication between all branches of the human family. Here, again science has presented mew opportunities to humanity which will surely alter their scheme of life, their habits of mind, their social customs and pleasures.

We stand on the threshold of a new age, and already we are conscious of newly revealed wonders, which would, in past times, have been thought miraculous or impossible.

"Our present world is a changing world. Never before has change been so persistant or so permeating a factor. More over, there is every promise that, rapid as change has been, it will be even more rapid in the future." (3,Kilpatrick, p. 131).

"Our young people face, then, an unknown future. We must in a new sense and degree, prepare our young people to hold their own in a changing world. . . . . We must, if possible, build characters who can stand amid change, who are more intelligent as regards social matters, who can, and will,

steer changes into better directions." (3,p. 131).

Change must, in a new sense and degree, enter into our calculations. Knowing that we face an unknown and shifting future, how are we then to prepare our young people to hold their own?

"The conditions of true learning, that is for appropriation in life for life, seems to demand that subject-matter be taught, typically if not exclusively, when, and as it is needed in order to carry on some enterprise which the learner has then under way. . . . . With increasing age the successive enterprises,(activities), problems, projects, experiences of whatever kind will increase in social outlook and in thought content." (3, Kilpatrick, p. 133).

This appears to mean that subject matter cannot be taught, as in the past, by mass instruction, but should be taught to individuals when it is needed.

"The plan of teaching subject-matter as it is needed seems, if reasonably directed, to promise not less, but more and better learning of both skill and knowledge. . . . ." (3, Kilpatrick, p. 133).

In this changing world no two persons can be confronted with an identical series of situations, especially during that major portion of time spent at home and within the general community life. Therefore, each individual must live his own life according to his nature and the sequence of situations within which he finds himself.

"In its details, life can scarcily be planned at all except as it is planned currently and for the individual himself." (3,Bobbitt. p. 46).

D. Schools have Ignored Individual Differences To A Large Extent. Education is in life and for life, and life is an individual affair.

"No two persons can have identical sequences of moods, wishes, intentions, awakened desires, impelling surges of ambition, likes and dislikes, loves and hates, attractions and repulsions, and the thousand motivating influences which vitalize and impell the current sequences of the individual activities." (3, Bobbitt.p.46).

Individual differences are unavoidable and invaluable. The extent of the individual differences among children is just beginning to be realized. Schools, heretofore, have to a large extent ignored these differences, in an attempt to get simple, uniform organization, courses of study, and textbooks. The schools have, therefore, failed to exert the influence that they should toward developing good citizenship.

"This failure manifests itself in certain bad habits fixed upon the children. These habits include the habit of failure, the habit of half-done work, the habit of work below one's full powers, the habit of shirking. Furthermore, in the economic waste of re-educating repeaters, of holding out of productive activities for one or more years, those children whose time is wasted by maladjustment, and in turning out half-educated, those children whose failure has discouraged them from further educational effort, the school system itself is displaying not only inefficiency, but bad citizenship." (1, p. 30).

This failure of schools to adapt themselves to individual differences indicate that more effort should be made to meet individual needs of school children generally.

E. The Neeèssity of Adapting Vocational Agricultural Instruction to Individual Needs. "Each occupation demands its separate and special curriculum." (Bobbitt). Many of the problems involved in teaching vocational subject-matter are common to those in teaching the subject-matter of general education. However, specialization in industry carries with

it certain specific problems. "Each worker will, typically, devote himself to a narrow groove. Education must see to it that he does not live with corresponding narrowness. The less of satisfying life and thought to be found in one's vocation, the more of these the rest of his life must supply. The school must then work along two compensatory lines." (2, Kilpatrick, p. 68).

The specialty itself must be cared for in all its various connections and the individual himself must see life in all its many connections. We must, in spite of specialization, avoid selfishness and secure cooperation.

"Breadth of view, felt relatedness of one's work with the rest of the social process, interest in and cooperation with the social whole, additional interests in life - these are the more insistent demands which a growing specialization makes upon life and accordingly upon a proper scheme of education". (2, p. 69).

Vocational Agricultural Education has its own peculiar problems to contend with.

> "Secondary agricultural education, to be vocational, must prepare or improve a person to pursue effectively a specific farming occupation."
>
> "Vocational agricultural education is that education which:
>
> 1. Gives the skill and knowledge necessary to the control of plant and animal production, to the end of economic profit, and,
> 2. Is so articulated with other education as to promote the most desirable farm community life." (7, Schmidt, p. 8.)

The methods used in the past in conducting agricultural education in schools have been on the class basis. That is, a uniform curriculum mechanically imposed upon all boys of what ever situation. The only variation has been in the conduction of project work where the boy was allowed to

initiate plans and carry thru activities in which he was individually interested. Some individual instruction was given to the boy when the instructor visited him in project supervision.

This method of instruction now is obsolete, in view of the conceptions of the newer education, in a rapidly changing world and the unknown future needs of farm boys. The fundamental reason why class methods fail to fill the educational needs of farm boys, is because of the varying situations and problems each boy, as an individual, is called upon to meet and solve.

Farming is a business with many varying characteristics. Aside from the fact that farm boys are individuals varying in native capacity and ability; the very nature of farming is change and variability. The program and activities on each farm change and vary within the day, the month, and year. The seasons of the year, weather, pests, and markets cause change. Farm organization and operation vary with the size of the business, the type of farming, the amount of capital, the fertility of the soil, the cropped area, the kind of livestock kept, the market facilities and farm labor conditions.

Farming is a family and a community affair. When conditions of farming are altered, family and community life is affected. So, the life of the farmer, the individuals of his family and the members of the community are subject to change.

"But the major responsibility of education is so to project its influence that life is held high. . . . . In its details life can scarcely be planned at all except as it is planned currently and for the individual himself. In chief measure it appears it must be planned by the individual himself. Each person, it seems, must have his own curriculum. He may need much assistance, guidance, oversight, and stimulation; and yet it appears that, except for very little children, and largely for them, one must plan for one's self." (3, Bobbitt, p. 46).

In general we believe that adults should have the right of self-planning and self-directed realization of life's opportunities, but, are not so sure that children and youth should have it.

"A uniform curriculum mechanically imposed upon all boys and girls of whatever situation, is, so far as it is effective, a clear denial of the right of the individual to initiate plans and carry through activities in which he can most fully realize currently the ends of his existence." (Bobbitt).

Individual instruction comes in with the recognition that in this freedom of initiating plans, there is need of guidance of children and youths by teachers, parents, nurses, librarians, family pastors, and their own juvenile friends and associates, assuming that it is possible to have both freedom and responsibility.

It thus appears that in order to prepare farm boys and girls to live in a changed world along with other boys and girls, they should be given the freedom to initiate plans and carry them through, with the guidance and direction of adults and teachers. This calls for a change of method in our agricultural classes, as well as in other classes the boys attend in our schools. Individual instruction methods should largely care for the individual

educational needs of farm boys.

CHAPTER III

GUIDING PRINCIPLES AND ASSUMPTIONS FOR INDIVIDUALIZING VOCATIONAL AGRICULTURAL INSTRUCTION

A. The Problem of the Chapter. However important, even indispensable, the elements of the social heritage may be, their values cannot be realized in education until they have been reexperienced by the learner and made an integral part of his life. We now come to the heart of the problem, which is to adapt the materials of agricultural education that are socially valuable to the widely varying capacities for learning, and the widely varying needs, represented by the pupils of vocational agricultural classes. Before this material can be adapted we are in need of some guiding principles for direction in our attempt to set up a program for accomplishing this purpose.

In order to render a possible service to students of education and curriculum makers the members of the committee of the National Society for the Study of Education on the Technique of Curriculum-Making, agreed upon a general statement of working principles of curriculum-making. This statement is intended to call attention to the direction in which curriculum-making is moving at present in its attempt to solve its major problems. In seeking for general direction in determining the guiding principles for making up a program of individual instruction it will aid us to examine a few of the principles arrived at by this committee. Those having a bearing on individual instruction are as follows:

1. That in the selection and validation of curriculum-materials, expert analysis must be made both of the activities of adults and of the activities and interests of children.

2. The curriculum can prepare for effective participation in social life by providing a present life of experiences which increasingly identifies the child with the aims and activities derived from analysis of social life as a whole.

3. The skills and important factual materials which are of frequent, crucial, and nearly universal use will emerge directly from analysis of social needs.

4. In stressing the importance of common elements in the curriculum we reconize fully that there should be different expectations with respect to the accomplishment of children who learn rapidly and those who learn slowly. The curriculum should provide fof individual differences. In so far as possible under the administrative handicaps of large classes and a wide range of abilities, curriculum provision should be made specifically for several levels of ability.

5. No definite line can be drawn between general and vocational education. Education may be characterized as being "vocational" when the curriculum content is selected in the light of its appropriateness for a specific calling - when the ideals, knowledges, and

skills that are developed make for sucessful adjustment and control in the chosen calling. This will mean that there will be at all levels of vocational education some curricular content that is appropriate to general education. The extent to which the general element should be present can be determined only by analysis of the situation calling for vocational education and the time at the disposal of the learner.

6. The forms of learning which should be encouraged are those which lead on the intellectual side to generalization, on the habit side to cultivation of useful skills, and on the side of attitudes and appreciations to the recognition of those relations which are most permanently satisfying. Advantageous learning grows only thru reaction. The term "true learning" therefore, is applied to any change in the control of conduct which permanently modifies the individual's mode of reacting upon his environment.

7. The essential element in "subject-matter" is probably now best concieved as "ways of responding", or of reacting. From one point of view, "subject matter" will be concieved as the best mode of behavior that the race has discovered; from another point of view, the actual ways of responding that the learner is building into his own character.

8. New subject matter is brought into the curriculum as race experience, therefore, to provide patterns

of response which the learner needs at any stage of his growth.

9. The curriculum should be concieved, therefore, in terms of a succession of experiences having a maximum of life-likeness for the learner. The materials of instruction should be selected and organized with a view to giving the learner that development most helpful in meeting and controlling life situations. Learning takes place most effectively and economically in the matrix of a situation which grips the learner; which is to him vital - worth while. Traits learned in a natural, or life-like setting give promise of emerging definitely in appropriate conduct. It is the task of the teacher and the curriculum-maker, therefore, to select and organize materials which will give the learner that development most helpful in meeting and controlling life situations. The method by which the learner works out these experiences, enterprises, exercises, should be such as calls for maximal self-direction, assumption of responsibility, of exercise of choice in terms of life values.

10. No formulated scheme of assimilation, made in advance, and handed out complete by the curriculum-maker, can, of itself, be sufficient. To be truly functional for him, the process of assimulation must be the pupil's own. This does not, however, deny the effective part that the good teacher or other expert may have in assisting the pupil. The curriculum-maker should arrange activities

and materials so as to give the learner carefully planned assistance.

11. That part of the curriculum should be planned in advance which includes: (1) a statement of objectives, (2) a sequence of experiences shown by analysis to be reasonably uniform in achieving the objectives, (3) subject-matter found to be reasonably uniform as the best means of engaging in the experiences, and (4) statements of immediate outcomes of achievements to be derived from the experiences.

12. That part of the curriculum which represents the daily life-situations and interests from which the immediate specific needs of students arise, should be - can only be - made from day to day.

13. That the materials from the starting point of the needs of the learner, irrespective of the content and boundaries of existing subjects.

14. As the reorganization of the curriculum proceeds, ... some existing subject divisions may disappear as separate units in the curriculum; some may be retained, and new ones may make their appearance. (3, p. 11-28).

B. Guiding Principles and Assumptions.

1. It is neither feasable nor practical to place all instruction upon an individual basis, a large amount must be on a class or group basis.

(a) "At any one time there will be certain hindrances which for the time are beyond control.

These must be given due consideration.

(1) Among such present hindrances are textbooks as at present made, conventional requirements .... the ordinary classification and promotion schemes, present habits and outlooks of teachers." (Kilpatrick).

(b) "Practice in socialization as well as consideration of finance alike demand that children be educated largely in groups." (Kilpatrick).

(c) "Much of it (information) is equally needed by all of the boys and can be given to them all at once as a class." (Bobbitt).

(d) "It is fundamental to provide not only for individual mastery of the common essentials, but also for activities in which individuals may express their differences and in which they may learn to co-operate socially with other individuals." (1, Carlton W. Washburne, p. 258).

(e) "Certain knowledges and skills in the curriculum are needed by every child." (Washburne).

2. As much of the existing agricultural educational organization as functions should be retained in the new organization.

(a) "The curriculum must be made in the light of the known facts and principles of school administration." (3, Harold Rugg, p. 162).

(b) "The past should not be ignored nor the experience of the race disregarded." (Fredrick Bonser).

3. As one attempts to formulate the curriculum of functional agricultural education, it is desireable to include both individual experiences and group class experiences.

(a) "The experiences of dominant and preponderant types should be those of individual character, and that even where we have group activities, much of the time the activities must be fully spontaneous and individual, even though manifesting themselves within a social group." (Bobbitt).

(b) "Vocational education will be effective in proportion as it enables each individual to capitalize his interests, apitudes and intrinsic intelligence to the highest possible degree." (4, Prosser and Allen).

4. In initiating individual instruction into the agricultural education program, determine which part part of the program is to be individualized first. Select the part of the program that can be put on an individual basis easily.

(a) "The general technique of individualizing schools cannot be incorporated bodily and instantly in a school system. It must be introduced little by little; it must be the result of growth." (Washburne).

5. Farm Mechanics, laboratory work and much project supervision on the home farm can easily be put on the individual basis.

(a) "Shop work in the senior high school can be put on an individual basis without any special technique." (Washburne).

6. In class instruction with subjects requiring the preparation of special materials, it is desirable to make the preparation at least one semester before attempting to individualize such work.

(a) "Individual work prepared under pressure of keeping ahead of the class is likely to be poor and to result in discouragement on the part of the teacher." (Washburne).

7. Goals of achievement for the deciding of the exact amount of knowledge and skill to be mastered in the individualized subjects should be set up.

(a) "For every occupation there is a body of content which is peculiar to that occupation and which practically has no function value in any other occupation." (Prosser and Allen).

(b) "Vocational Education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and manipulative habits required in the occupation itself." (Prosser and Allen).

(c) "Certain knowledges and skills in the curriculum are needed by every child. These must be isolated - on paper at least - and stated in very definite terms." (Washburne).

8. Certain changes will need to be made in school facilities, such as, arrangement of class rooms, laboratory and shop to facilitate the supervision of individual work.

Note: The author has failed to find in any current works any mention of how the present school facilities, such as arrangement of rooms, shop or laboratory can be adapted to individual instruction. The above principle is derived from his own experiences in conducting individual instruction. There is, However a plan for a new arrangement of classrooms laboratory and shop, being advocated by Prof. G. A. Schmidt, Colorado Agricultural College, in his teacher training courses which will take care of individual instruction in agriculture.

9. In conducting individual instruction recitations will be abandoned and a system of individual work substituted for it.

(a) "When the general plan of individualized work is inaugurated in any subject, supervised study, and diognastic tests will entirely replace the recitation." (Washburne).

10. In conducting individual instruction every pupil should be given an opportunity to vary - to exercise originality, to create things, to express himself.

(a) "The methods used in the classroom must provide pupils with opportunities to form purposes, and if they form unworthy ones, the teacher must guide them until they form better ones. Such guidance, however, is a farce unless it explicitly recognizes the individual as a sovereign center of decision, selection and organization." (3, Stuart A. Curtis, p. 93).

11. All problems, in so far as practical, should be planned, analyzed and studied, by the pupil for his own individual activities, under the guidance, direction and stimulation of the teacher.

(a) "It is the pupils practice alone that can educate him and practice is impossible without freedom for practice. If the pupil is to be an intelligent user of what science has to offer he must practice finding and adapting what science has to offer to his problems." (Kilpatrick).

(b) "The mind grows according to its exercise. Ability to function is developed through normal exercise of function. One learns to do a thing through doing it." (Bobbitt).

12. A simple record system to keep track of pupils individual progress must be devised if confusion is to be avoided.

(a) "Some form of record keeping is necessary since each (pupil) is mastering each phase of each subject at his own rate." (Washburne).

(b) "If pupils learned at equal rates, the problem of individual differences could be solved by classification." (1, Mary A. Ward, p. 160).

(c) "The record sheet as a whole thus presents a vivid picture of where every pupil stands in relation to standards." (Stuart A. Curtis).

14. A method of testing should be prepared or selected; (1) for testing each pupil on each unit of work (2) for measuring the effectiveness of individual instruction.

(a) "When pupils have mastered a subject or solved a problem, they want to be tested to see whether they know what they think they know or can do what they think they can do." (1, U.I. Hoffman p. 119).

(b) "As far as feasible, the teacher should ascertain, preferably by comparable objective tests, what growing is being achieved by pupils under his care." (Kilpatrick).

15. All vocational agricultural teachers are not prepared to conduct individual instruction. An analysis of their duties and abilities, for putting over instruction on an individual basis, should be made for guidance in training for this type of work.

(a) "Almost all teachers in service have received training in a form of mass instruction which centers responsibility for the control of the learning process in the teacher. The conventional conception of teaching is "Doing something to the child" in contrast with "assisting the child to do something to himself." (Stuart A. Curtis).

(b) "Individualization of instruction involves a radical change of point of view in teachers." (Curtis).

(c) "We must remember that the teaching body varies in amount of experience and amount and type of training and in individual ability almost as much as the student body." (1, A. A. Sutherland. p. 21).

15. There is danger in over-emphasizing individual instruction.

(a) "It (is) evident that much thought and experimentation are necessary before a perfect way of fitting schools to individuals will be found." (Bobbitt).

CHAPTER IV.

AN EFFECTIVE ORGANIZATION FOR PUTTING INSTRUCTION UPON AN INDIVIDUAL BASIS

A. The Problem of the Chapter. In the preceeding pages, we have discussed some of the newer conceptions of education, and the need for placing more of our instruction upon an individual basis. We have discovered some of the guiding principles for an individualized program. It is now necessary to determine an effective organization for placing agricultural instruction on an individual basis.

To do this, it would probably be best to see if our present organization can be used effectively for individual instruction. If it can be used, very largely, how shall it be adapted to individual needs?

B. Is the present Organization Adaptable to Individual Instruction. Under the provisions of the Smith-Hughes Act, the responsibility for setting-up a Vocational Agricultural program within a state falls upon the State Board for Vocational Education. In general, state plans merely indicate the subjects to be taught. What is to be taught, in each subject, is usually left to the local teacher to adapt to the local community needs and conditions.

Three distinct kinds of vocational agricultural work are generally made a part of the program of vocational instruction, These are:

1. Classroom, laboratory, and field instruction.
2. Supervised practice work, commonly called home projects.

3. Mechanical instruction, called farm shop work, farm mechanics and farm engineering.

The State Boards for Vocational Education, in most states, have, in their state plans, a program of class schedules which teachers are expected to follow. These schedules show the distribution of time between the three kinds of vocational work. In most states it is not supposed that the instructor will follow the schedules suggested, day in and day out. The time is usually adjusted to suit the work under consideration.

The instruction is usually based upon the farm enterprises of the community, which are determined from an agricultural survey. The organization of subject-matter for instruction purpose, based on this survey by enterprise analysis, job analysis, seasonal sequence, and the making of teaching layouts, is familiar to the large body of vocational agricultural teachers, so will not be gone into detail here. However, it is necessary to use this organization or devise a new one for giving instruction on the individual basis.

Before substituting a new organization, we should remember that the present organization (1) is the result of years of experience; has stood the test of time in producing good results. So, it would not be advisable to discard it. Adapting it to individual instruction merely means improving it to the extent that it will function on an individual basis. This can be done without a great amount of change.

(1) See Chart I, p.45.

An Outline of the Procedure followed in the Selection and Organization of Teaching Content in Vocational Agriculture

Steps	Principles Underlying Steps	Means or Methods	Kind of Analysis
1. Get occupational facts of community.	Voc.Ed. is specific. Must know what we are attempting to prepare one for.	Community survey blanks or questionnaires. Gather the facts.	Community or occupational analysis.
2. Determine the type of farming	Data must be summarized to be usable.	Fill out the summary sheet.	
3. Determine extra activities and projects in course	Instruction must prepare for present activities and meet assured future needs.	Record data on summary sheet.	
4. Set up Guiding principles for selection of aims and content.	There must be justifiable reasons, substantial evidence for what is taught.	Study community activities, needs of boys and school facilities.	
5. Determine the major objectives.	Aims precede selection of content and methods.	Weigh all items, think of what should be done -Record Them.	
6. Make a yearly teaching plan	For best use of time it must be carefully distributed	Fill out a yearly teaching plan.	
7. Make a job outline of each enterprise.	Jobs must be carefully selected on basis of needs-thinking and doing abilities.	Fill out job outline sheets.	Enterprise analysis.
8. Keep a time distribution sheets	Saves time in building course. Avoid overcrowding in months	Keep time distribution sheets.	
9. Make a horizontal and monthly lay-out.	Shows jobs to be taught in each enterprise and in each month.	Transpose jobs from job outline sheets to horizontal layout.	
10. Make farm job lesson units.	Job is natural unit of work and therefore, best teaching unit. Allows teaching of fundamentals in close connection with a real activity.	Make farm job lessons.	
11. Determine the functioning teaching content.	Analysis in only accurate way of determining what to teach.	Analyze: 1. Operative jobs. 2. Managerial jobs.	Job Analysis

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C. Parts of the Present Organization Discussed from the Standpoint of Individual Instruction.

1. Farm surveys must be in more detail. In addition to the regular survey which is made in a community to determine the extent and importance of crop and animal enterprises, other surveys are needed. In order to know more about the individual needs of boys enrolled in agricultural classes, a survey should be made of each boy's home farm. This survey should be conducted with the boy, with the object in view of helping him to discover the specific needs of his own farm. It will also aid the teacher in discovering the particular vocational needs of each student.

This survey need not entail much extra work as the data obtained can be used in the summary of the general survey. The same type of survey sheets can be used as for the general survey, except that, in the column headed "remarks." specific problems and needs could be noted, for example:

(a) Soil conditions, good - fair - poor.
(b) Farm layout, good - fair - poor.
(c) Rotation used, good - fair - poor.
(d) Physical equipment, state of repair of buildings, etc., good - fair - poor.
(e) Type and condition of machinery.
(f) Type of power used, tractors, trucks, horses.
(g) Farm practices used.

The back of the survey sheet can be used to list special conditions not taken care of in other ways.

The information obtained should be used in building up the individual curriculum of the boy.

2. Yearly programs of work for individual Instruction. Several different plans are now in operation in the various states for organizing subjects into yearly plansfor work. The "short time"program is used in some states and the "long time" program in others. Still others use both the "Short time" and "long time" programs, Either of these programs are adaptable to individual instruction. In the short time program the subject matter is broken up into those jobs having to do with animal production in one group; those having to do with crop production, fruits and vegetables, into another group. In the short time program , animal husbandry is usually taught the first year, crops production, the second year, and fruits and vegetables, the third year, with special subjects like farm management and marketing, the fourth year. In the long time program, all of these various lines of activity are carried simultaneously; going from the more simple to the complex.

In individual instruction it would probably be better to vary both of these programs. The writer used the short time program last year, and found that he had to

change the program, somewhat, to use individual instruction based on the needs of pupils. For example: Boys, who carried swine projects over into the second year, had many new problems to solve, which had not developed the first year.

First year or ninth grade agricultural pupils average about fourteen years of age, therefore, are too young to appreciate real vocational training, because many have no idea what occupation they want to enter. If they had been given vocational guidance, perhaps, many of the boys would not be in the vocational agricultural classes. Lacking vocational guidance, it is almost necessary to use the first year agricultural course largely for this purpose.

Projects the first year are usually small, making real vocational education difficult to teach, unless, they become interested in other activities on the home farm. City boys, in vocational agricultural classes, have always presented difficult problems in connection with supervised practice work. It appears, then, that first year agriculture for all except a very few farm-minded boys, will be largely appreciational and vocational guidance.

Projects consisting of a few chickens, or, a couple of sows, or, a milk cow and calf, or a mule colt on pasture do not give a great amount of incentive for study or a basis for vocational training.

Boys, who are farm-minded, do not often drop projects but keep enlarging them. A first year project of one or two gilts may become a project of thirty sows by the fourth year.

When projects are carried from one year to the next, new problems arise and should be taken care of in the curriculum. The second year, a boy may also have a crop project, the third year, he may be carrying three or four types of projects and by the fourth year, have a farm. Increasingly his problems multiply along several different lines of activity connected with farming. The curriculum should be flexible enough to care for these situations.

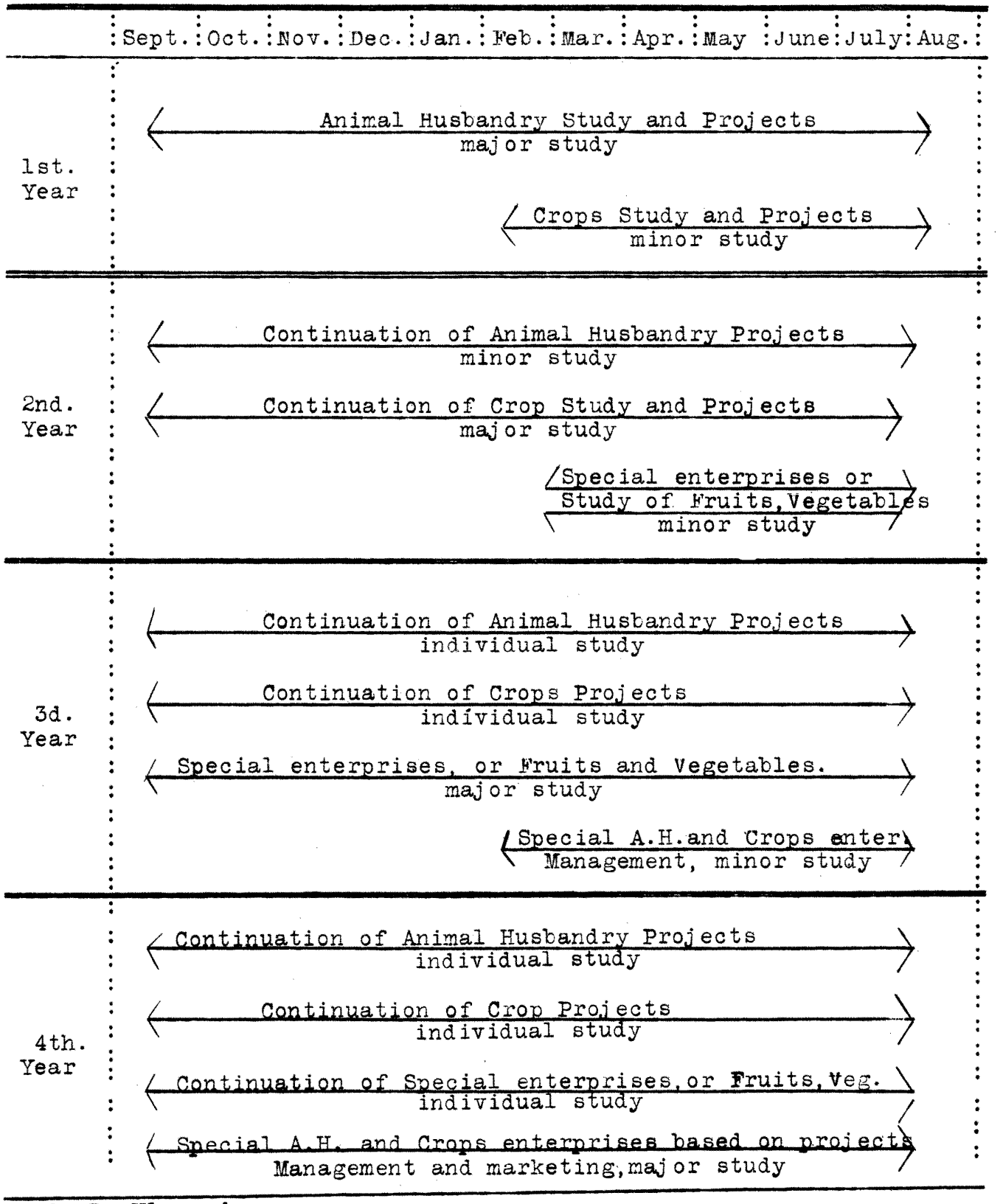
The following program can be used effectively to care for changing conditions and individual interests or problems.

Start the Animal Husbandry course in September of the first year; Crops production in Febuary or March of the first year. End Animal Husbandry course in October or November of the second year, with exception of "carry-over" jobs arising from continued Animal Husbandry Projects, and individual Animal Husbandry jobs arising from pupils farm activities. Bring the Crops production Course to a close, after the crops are marketed, in the second year. And put in the rest of the year on special animal and plant problems arising from increased scope of projects. Fruit and vegetable enterprise study can start in February or March of the second year and carry over to the third year. Or special enterprises can start at the close of the second year and be carried into the third year. By the time the fourth year arrives the boy will have

a small cross section farm and the more difficult problems of management and marketing can be taken up, with the assurance that the boy's project will furnish incentives and problems to work out.

With this plan, the individual boy's increasing problems, arising in real farm situations, will offer a basis for real vocational training. (See chart, Yearly Program of Work in Agriculture, p. 51.)

CHART II.
YEARLY PROGRAM OF WORK IN AGRICULTURE.



L. D. Klemmedson

3. Changes nesessary in Enterprise Analysis. The enterprise analysis will need to be broken up into three divisions for individual instruction.

(a) Class Jobs. Jobs having to do with common essentials which all pupils should have. Type jobs which are more or less common to all, or several enterprises.

(b) Special Group Jobs. Those jobs in which special groups in the class will need but which are not needed by all pupils.

(c) Individual Jobs. Those specific jobs which only concern special individuals in working out a job common to no other pupil.

(See chart in Appendix A. Illustrating an Enterprise Analysis).

There is a necessity for a very detailed enterprise analysis for individual instruction. As, there are many jobs which need to be done in conducting a farm enterprise which concerns only the person doing the job, under his particular situation. In order to conduct the enterprise efficiently the boy needs to know how to do practically all of these jobs. The teacher cannot teach them all, even if school time permitted. These jobs must, never the less, be called to the pupils mind so he can endeavor to learn to do them. How he learns to do them is discussed in Chapter VI.

4. Importance of projects in Individual Instruction. The will to learn is present in boys in different amounts according to the motivating interests in their lives. Interests develop from a purposeful, self-directed activity conducted by the boy.

"Because a self-directed project carries with it many responsibilities, it developes educational values for the project worker not possible in the project owned and directed by someone else who assumes all the responsibilities for its success." (7, Schmidt, p. 45).

"If learning is to proceed at all, the attention of the learner must be secured. And his attention can only be secured through a direct or indirect appeal to his interests." (3, Geo. S. Counts, p. 80).

"To secure the interest of vocational agricultural pupils, a teacher should strive to develop the best possible project activities. An incentive to learn -"finding and getting the new way of behaving" - should be greatly stimulated by the boys project work. If he does not find a good project, "one large enough to challenge the best interests in the boy", or an ownership interest in the home farm business, he has very little to stimulate a desire to study or learn.

"The subject-matter of the curriculum, to become effective, must dwell in the pupil's mind in an appropriate setting of motives, incentive, and interest organizations To follow the course of study, stated in terms of subject-matter without such a setting, is to feed the pupil cold storage meat, and leads to memorization of the subject-matter in verbal terms only. To follow the course of study stated in terms of abilities and activities means to vary the quantity of subject-matter, to enrich it as needed, to reduce it to bare content when it is of less importance." (1, A. A. Sutherland, p. 19-20).

"Until we have found the (pupil's) interests we have not found him - he is still lost in the educational woods" (3, Counts, p. 80).

Other reasons for putting a great amount of emphasis on projects are: (1) they offer opportunity for acquiring operative skill. (2) develop managerial and business ability, (3)develop initiative, responsibility and resourcefulness and (4) offer an opportunity to gain experience, all of which are needed by the individual to make life on the farm successful.

Incentive to study and learn is the keynote of individual instruction. The project offers the best possible means for furnishing incentive to study and learn, because the boys interests are so closely allied to it. What ever is included in the curriculum should be brought into the closest possible relation with the home project and other activities the boys are interested in on the home farm.

It is necessary, in order to make individual instruction effective to begin early to secure the boy's interests thru project work. Junior projects carried on with pupils in the grade school offers one of the best solutions for avoiding poor projects the first year and a corresponding lack of interest in agricultural instruction. Continuation projects, which enlarge each year with the boys ability to manage and finance will greatly aid learning and instruction after the first year.

5. The value of Laboratory Work and Farm Mechanics in Individual Instruction Program. These lines of work are necessary to give opportunities to individual students to acquire additional experiences and abilities which cannot

be had elsewhere. In doing a farm job, certain motor and sensory skills need to be developed which can only be taught on the individual basis, under the supervision and direction of a teacher in the laboratory or shop. They should be developed when tnere is a real need for them in doing a real job.

There is a saying, "that every man's work shop is his laboratory". So, we must think of laboratory in a very broad sense. Of course, there are a lot of experiments that can be preformed in the school laboratory more efficiently with a saving of time for both pupil and teacher. The same is true of the farm shop.

In every person their is a sixth sense, that needs development, particularly in the young, and that is "intuition". Intuition is defined as "the unconscious use of logic, based on esperience, an animal instinct, inherited from ancestral experience of the race, that enables us to scent danger."

Humans make many decisions, largely by how they feel about a proposition, rather than how they think about it. Intuition is developed by the trial and error method. This method is still very important in learning. It is sometimes called the pick-up method. It is through trying many things, and getting experience that a person develops intuition which he has to use many times instead of cold reasoning. When dealing with nature, as a farmer must, the chances that he will reason rightly to find out how to do

a thing, are a million to one against him, because we know so little about nature, that we cannot figure all the possible combinations. But if we use such knowledge as we have about the properties of matter and the principles of mechanics, to guide our experiments, and then try all the experiments we can, and watch the results carefully, we will probably find what we are looking for. So, the laboratory and shop become increasingly important the more an individual is put on his own resources.

6. Time distribution for Individual Instruction. In the yearly teaching plan ample time must be allowed for individual work. The time allotted to class and group jobs must be scheduled to determine how much time will be allowed from school class time for individual work. To avoid confusion and to cover the work that must be done each year it is necessary to set time limits for accomplishing work.

On some jobs there will be quite a variation in time needed to do the job between different pupils, This depends upon the importance of the job to the individuals needs, of the boys, and their learning capacity. Time limits for doing a job have to be set, to cover ground and slow students will have to do the best they can or do more work out side of school, if the teacher insists that they cover a certain amount of subject matter. Time distribution sheets should be filled out so that the teacher

can tell if pupils are doing jobs when they should be done according to seasonal sequence. This is done by placing a check mark (✓) in the month in which the job should be done.

7. Horizontal Layout Still Necessary. The horijontal layout sheet is still necessary as a means of determining when jobs should be done. It is used very much, as before except that in individual work only class and group jobs are listed. It would be impossible to list all separate individual jobs.

CHAPTER V.

THE SCHOOL FACILITIES NECESSARY FOR CARRYING ON INDIVIDUAL INSTRUCTION

A. The Problem of the Chapter. The problem of what school facilities are necessary for putting instruction on the individual basis confronts us. What changes must be made in rooms and equipment to accomodate this type of instruction? How rooms and equipment should be arranged to permit the pupils to work individually and permit the teacher to supervise and direct the individual pupils. Is extra equipment needed for conducting work on the individual basis?

B. Schools Built for Mass Instruction. Our schools in the past have been built for mass instruction. They are not often arranged to care for individual needs. In many cases the agricultural department rooms and equipment, even now, are only make-shifts. Shop and classrooms are often in separate buildings, and separated by other rooms, or on different floors. A great amount of confusion takes place under these arrangements when individual instruction is attempted. Much time is wasted in running from room to room on different floors. The conduct of pupils is hard to manage when they are left alone in separate classrooms, while the teacher is in shop or laboratory supervising individual work in those departments. A few agricultural departments are well-arranged for individual instruction, either by accident or by design in new buildings.

In conducting individual work, it is often necessary for a pupil to do a laboratory exercise, or a piece of shopwork,

to efficiently do a farm job. Also, a pupil may get thru with class work early and need to go on with shop or laboratory work immediately. This means students working in different departments at the same time. If one teacher must supervise, and direct all work, it is necessary to have a laboratory and shop close to the class rooms. Where two teachers are on the job, conditions are much simplified.

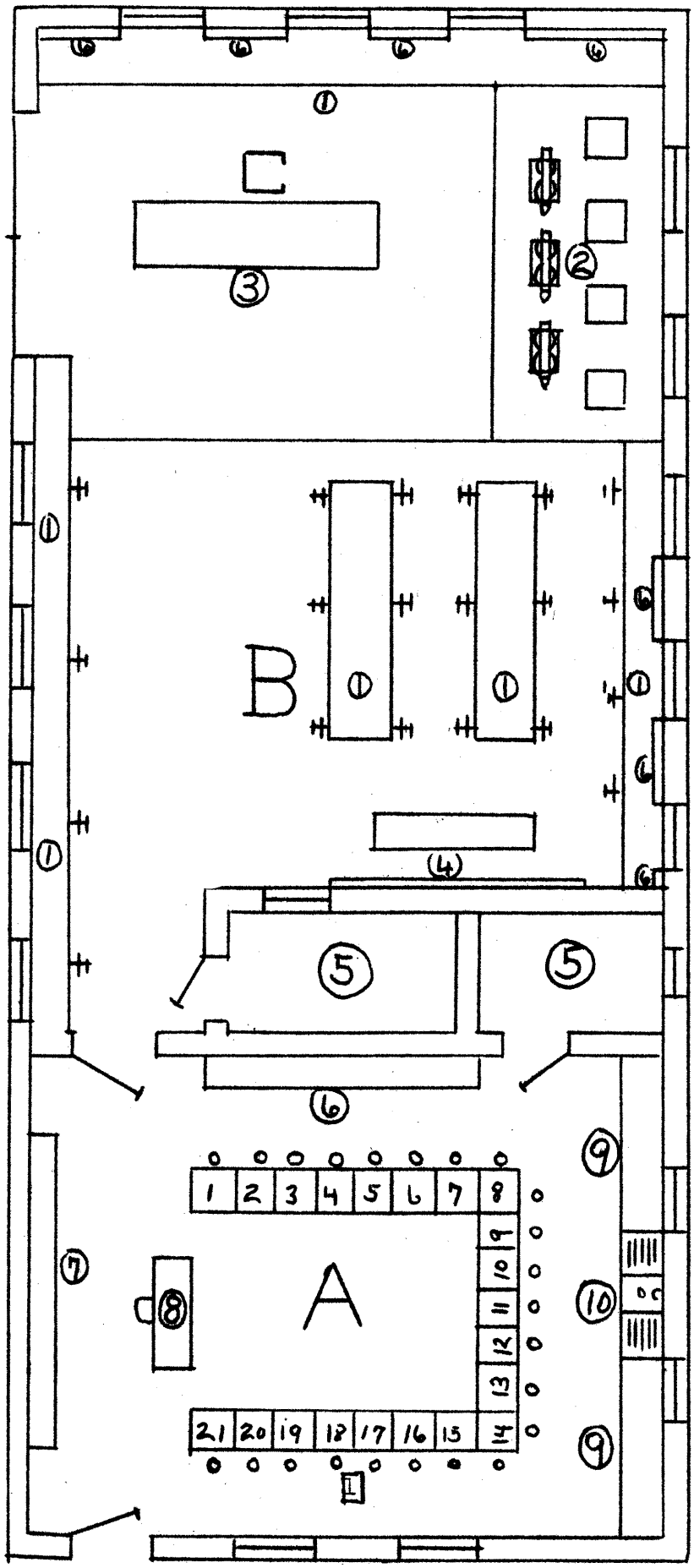
C. An Ideal Arrangement for individual instruction is to have the classroom and laboratory combined and the farm shop joined onto this room, all on one floor, with a glass in the upper half of the doors between the rooms.

A suggested floor plan, for a department of agriculture, is shown on page 60.

This plan permits the teacher to supervise both class and laboratory work in one room and shop work by stepping into the next room only a few steps away. Individual study, laboratory work, and shop work can be going on in both rooms at the same time.

In buildings where an arrangement similiar to this can be made, by a little moving of departments from their present rooms to others, it will pay to do so.

D. Adapting Room Equipment to Individual Instruction. If tables cannot be used, because the room is too small, or they are not available, good desks can be used instead. These should be arranged in groups, so pupils working on projects in the same enterprise can be close to each other. If movable desks are used, any grouping can be made which suits the needs



A SUGGESTIVE FLOOR PLAN FOR A DEPARTMEI OF VOCATIONAL AGRI- CULTURE.

A. Class Room

B. Wood-working Dep

C. Farm Motor and Machinery Dep't,

(1) Bench
(2). Forges
(3). Automobile Pit.
(4). Demonstration table
(5). Store Room.
(6). Cabinet.
(7). Agricultural Dep't Library.
(8). Teacher's desk.
(9). Laboratory Table
(10). Sink.

[1] Pupil Study table.

of pupils and teachers. If desks are in rows, they should never be close to a wall or obstruction, as too much time is consumed in getting from one pupil to another for conferences.

Laboratory equipment should be arranged in cabinets or a store room close to the laboratory tables. It should be arranged so that it can be easily taken down and replaced by pupils, and easily checked by the teacher.

The departmental library should be close to the teachers desk where he can assist pupils in finding bulletins and reference material. Books and bulletins should be filed by subject as well as by a definite filing system if possible. Any system which will permit pupils and teacher to get reference material rapidly is the best system. It is difficult for pupils fo find reference material in a poorly arranged library. The writer recommends the system advocated by Prof. G. A. Schmidt, in "New Methods in Teaching Vocational Agriculture," p. 130.

On bulletin file cases, not only write the filing case number, but also, the type of bulletins to be found in the case, for example, 6.4 Swine; 3.2 Forage Crop, grasses. This will aid pupils in finding and replacing bulletins.

In the shop room place the tools most commonly used in locked cabinets on the wall. Have each tool silhouetted back of it's place in the cabinet. The pupil can then replace the tool in it's proper place, and the teacher can check them easily.

Group the wood-working appliances in one part of the shop, the forges in anotner, and the automobile repair appliances in

another, so that special groups can be supervised easily in each department.

The whole idea, in arrangements, is to put things in such places and in such shape that the pupil can do as much as possible without assistance, and so that the teacher can supervise and direct individual work with facility.

Individual instruction can be carried on with less equipment in the laboratory and farm shop than under a system, where the whole class does work at the same time on the same job or experiment. A few more reference books and bulletins may be necessary, because the text-books are usually not used much for individual instruction.

CHAPTER VI.

THE PROCEDURE TO FOLLOW IN CONDUCTING INDIVIDUAL INSTRUCTION.

A. The Problem of the Chapter. The task involved in teaching a group of from fifteen to twenty pupils enrolled in vocational agricultural classes on the individual basis, provides a real problem for most agricultural teachers. How to conduct the instruction on an individual basis, in class-work, in shop, in laboratory, and on the home farm, is the question confronting us. How to make the shift from a class, or en bloc system, to an individual system. What kind of materials does one need and what sort of a program is followed in conducting the instruction.

B. Making the Shift from Class to Individual Instruction. The general technique of individualizing a class cannot be incorporated bodily and instantly. It must be introduced little by little, it must be the result of growth. There are many places to start individual instruction in an agricultural program. All agricultural instruction does not take place in the classroom. Much instruction is given on field trips, on project supervision trips, in the school laboratory and in the farm shop. The agricultural teacher is responsible for most of the instruction given by these different methods.

One should begin individual instruction where it is easiest to begin. By that is meant, where the least preparation of material is required. This is usually in the farm shop. Some would disagree and say the easiest place to start is in project supervision. Before we finish this chapter, we hope to show where it is one of the most difficult and requires a great

deal of previous preparation of material by both teacher and pupil. It is true that while visiting a project, individual ins instruction may be given the boy, on phases of the work which do not require preparation of material by either boy or teacher, particularly on small projects.

The reason we say, that farm shop is the easiest place to start individual instruction, is because most of the material prepared for the teaching of the subject, on the old basis, is readily adaptable to use individual instruction. For example, We already have prepared job sheets, in varying forms, many of these can be put into the hands of pupils without changing and fill the need immediatly. With the large amount of material already prepared for teaching farm shop, no great amount of special arrangement need be made to put farm shop work on the individual basis. After a demonstration is made of a shop skill, it is then mostly a problem of supervision, direction, and testing, on the part of the teacher and study, work, and drill, on the part of the pupil.

Laboratory work both in school and in the field is easily adapted to individual instruction for the same reasons. Laboratory exercises are already arranged on the experimental basis ready for use by the individual.

Classroom work is not so easily adapted to individual instruction. The reason is that there is a big dearth of material for individual instruction. The dearth of suitable self-instruction material has held back the progress of individual work in schools.

"The problem of the right kind of textbook and test material to be used with the individual method must be solved before there will be any wide-spread use of the method." (1, A. I. Stoddard. p. 231).

C. Textbooks Not Adapted to Individual Instruction.

"The textbook is too limited in its scope. It has been suggested that this difficulty in the textbooks is due to the experience of publishers who have had to insist that the book fit the ideas and tastes of teachers, rather than those of pupils. In the upper grades and high school it is evident that no one book can contain the discussion of topics which it is desirable for the pupil to study. The need for development of methods of comparison requires that he refer to various authors, and other varieties of evidence." (1, A. A. Sutherland p. 20).

"Most of the textbooks that have been written were meant for class use, with the teacher assigning lessons and meeting the class in daily recitations so that the necessary direction and help might be given from day to day." (1, A. J. Stoddard, p. 23).

Until textbooks are printed in a form suitable for individual instruction the teacher, on the individual basis, will have to use the many fine books that are now on the market, by supplementing them by assignments. This process is being used in many schools that are applying the individual method in general education.

D. Job Analysis and Individual Instruction. The plan of education toward which the teaching profession moves is concerned, not primarily with knowledge, but with activity. Instead of knowledge of textbook sort, there should be subjective activities which are continuous, vigorous, diversified, abundant, and fruitful.

"The curriculum should be conceived in terms of a succession of experiences and enterprises having a maximum of likelikeness for the learner. The materials of instruction should be selected and organized with a view to giving the learner that development most helpful in meeting and controlling life-situations." (3, Committee on Curriculum Making, p. 18).

To select and organize materials of instruction a teacher must analyze each job to be taught, which in vocational education becomes a teaching unit. This is necessary because if new ways of behaving are to be developed in the boy, the best mode of behavinr that the race has discovered must be acquired by the boy. Job analysis has proven to be one of the best means of selecting and organizing materials which will give the learners, the development most helpful in meeting and controlling life situations.

"It is necessary that a teacher have at hand at any stage of his teaching an outline of the general attitudes, the finer appreciations, the important concepts and meanings, and the generalizations which he wishes to secure as part of the outcomes of his instructions. Not only must he have this outline of attitudes, appreciations, meaning, etc., which he sets as the goals of instruction, but, to be reasonably sure, that these come out of the instruction, the activities of children should be planned in outline form in advance." (3, Committee on Curriculum Making, p. 18).

The above quotation, by the committee on Curriculum Making of the National Society for the Study of Education, confirms the use of job analysis and teaching layout sheets, which have been in use in Colorado for several years.

The teacher should analyze each job to be taught in order that the best experience of the race in doing a job may be presented to the boys in vocational agricultural classes. The job should be analyzed as completely as possible the first time and additions and revisions made whenever a new factor comes to the attention of the teacher, or conditions change. In other words, the analysis must be kept up-to-date, to meet the educational needs of pupils in a changing world.

The teacher needs this analysis for his use in guiding, directing and stimulating boys into better ways of behaving and for presenting the common essentials of a job to pupils.

The teacher still needs the teaching layout sheet, or lesson plan, to guide him in putting over the instruction, setting up objectives, devices for donducting the instruction and for making his instruction conform to the four steps of a lesson.

D. Job instruction Sheets needed for Individual Instruction. Until textbooks are produced suitable for individual instruction it is necessary to supplement textbooks with mimeographed assignment sheets.

"The assignment (sheet) furnishes what is lacking . . . . in the ordinary textbook. That is, it suggests different lines of motivation for the work, states the purposes that control the doing of it, outlines tasks that are to be done, and supplies the explanations that are necessary in order that the child may progress without a large amount of help from the teacher. These assignments are mimeographed and placed in the hands of the pupils, (1, A. I. Stoddard, p. 243,)

The assignment or job sheets for each enterprise can be mimeographed or printed and given or sold to pupils. Where this is impossible they may be hectographed, or even written upon the blackboard and copied by the pupils.

In the past agricultural teachers have taken assignments from the job analysis sheet of the teaching layout and given directions either written or verbal. Jobs have also been analysed by the class group as a whole to get problems for study. Many teachers have given problems for study directly to pupils, regardless of individual needs. In all of the systems used,

that the writer knows about, they have disregarded the individuals very largely; every pupil gets the same dose of subject matter.

To take care of the individual needs of pupils, a system must be devised that is flexible and can be used by the individual as well as the class. The right of the individual to plan and think for himself has been largely denied by methods now in use, for presenting subject-matter for study and problems to be solved.

There are individual aspects of every job even though common to all. Provision must be made for taking care of these aspects. In the past pupils have had no part in the making of their own curriculums. Some system must be used which will permit the individual pupil to choose his own curriculum, under the guidance of the teacher, for the solving of the particular problems confronting him in his own life situations.

Job sheets should be devised which will not only take care of the common essentials needed by all pupils, in common, but which will also take care of the individuals personal needs

Before attempting to devise a job sheet a list of objectives sought thru their use should be set up for guidance.

E. Objectives Sought through the Use of Job Sheets. In job sheets for use in vocational agricultural instruction on the individual basis, the following objectives are sought:

1. Develop a means for directing the suudy of common essentials necessary to the job.

2. Develop a means for directing the study of individual problems connected with a job.

3. Provide a means of developing creative thinking ability on the part of pupil.

4. Provide a means for presenting the general situations of a job to all pupils.

5. Provide a means for the boy to present his own specific situations.

6. Provide a means for presenting the general decisions to be made in the study of the job. (present common problems to boy).

7. Provide a means for the boy to present his own decisions or specific problems.

8. Provide a means for presenting the common-factors of a job to the boy.

9. Provide a means for the boy to present the factors having to do with his own specific decisions and problems. (Boys cannot solve problems unless they can recognize the factors of a problem.)

10. Provide a means for presenting guides to information for solving the common factors of the job.

11. Provide a means for the boy to discover and present the guides to specific information having to do with solving specific factors of his own job.

12. Provide a means for presenting and directing study of general and related information.

13. Provide a means for directing the boys to reference material.

14. Provide means for giving directions for study and doing of the job.

15. Provide a means for taking care of problems which arise thru study of jobs or in the doing of a job.

16. Provide a means for presenting directions for guiding activities on field trips, in the laboratory, farm shop and in home practice work.

17. Provide a means for boy to list home practice work, laboratory work, and shop work, which must be done by him on specific problems.

18. Provide a means for guiding the original and creative thinking of the student.

19. Provide a means for developing the ability on the part of the boy to analyze jobs.

20. Provide a means for testing the thinking ability of the boy.

21. To save time of both boys and teachers during class time. (Save copy work).

22. Provide a means for guiding the preparation and study of a lesson by the boys.

23. Provide a means for stimulating the thinking ability of the boys, by presenting the common essentials.

24. To avoid confusion in study, by making study problems definite and systematic.

25. To furnish a guide for analyzing and studying

specific individual jobs, individual phases of group and class jobs.

26. To provide a means of putting responsibility upon the boy, for choosing and planning a large share of his curriculum, under the guidance of the teacher.

27. Provide a means for caring for needs of bright and slow pupils. Be flexible and suited to pupils capacity for study.

F. Essentials of a Useful Job Sheet. The job sheet becomes the pupils study outline as in vocational agriculture, jobs become lesson units. In order to become useful it should have the following essentials.

1. Must contain directions for study and doing of only one job.

2. Should be simple and easily understood.

3. Provide guide for analysis of a job.

4. Provide directions for study of general and related work.

5. Provide list of references, suggested, laboratory shop and home practice work.

6. Provide space for pupils analysis.

7. Not be too long or cover too many pages, both sides of the sheet can be used.

A suggested job sheet is illustrated on the following page. Directions for using are enclosed in each space following a heading. A job sheet as it is filled out by the teacher is on page 72, and a completly filled job sheet, as it is finished by both teacher and pupil is illustrated on page 74.

JOB SHEET FOR STUDY GUIDE IN VOCATIONAL AGRICULTURE

ENTERPRISE: _____

JOB: _____ : Days: Month: : 1. : Nov.:

Situations to be dealt with:

(General situations are stated here by the teacher).

Pupil's situation:

(The pupil states here his own specific situation realative to a job).

Decisions that must be made:

(Teacher states here a decision which is common to all pupils in class jobs or common to all pupils in a group in group jobs, or it can be left blank and the group can decide on the decisions in discussion. It is usually best to state at least one decision to stimulate pupil thinking).

Factors of decisions to be made:

(Common factors stated here) (Pupil factors stated here).

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Information needed for applying factors:

(Common essential information is listed by the teacher covering common factors).

(After teacher s list of "information needed", pupil will find and list, "information needed," to cover pupil factors).

Related and General Information:

(Teacher lists common and related information needed, such as related science, and other related information. Teacher also lists general information for benifit of bright pupils).

Problems for discussion arising from study:

(Students list problems they want to discuss in class, or with some one else. questions listed here, answers to which cannot be found in reference material).

Related field work, illustrations, laboratory and shop work:

(Teacher lists common essentials necessary for all pupils).

(Pupil lists special interests).

Home Practice:

(Teacher lists desirable home practice).

(Pupil lists special interests).

References:

(Teacher lists references covering common essentials).

(Pupil finds and lists references for his special problems).

Explanations and Directions:

(List special directions on board or on separate sheet. Laboratory exercises, shop job sheets, etc.,)

JOB SHEET FOR STUDY GUIDE IN VOCATIONAL AGRICULTURE

ENTERPRISE: Farm Work Horse.

JOB: #3. Building a Horse Barn. Days: Month:

Situations to be dealt with:

Barn need not be expensive to be servicable. Many horses do poor work because poorly housed. Poorly housed horses consume more feed and are more susceptable to desease and consequent layoffs.

Pupils situations:

Decisions that must be made:

What kind and type of horse barn to build?

Factors of decision to be made:

1. Type of horse barn.
2. Type of farming.
3. Climate.
4. Construction.
5. Material.
6. Cost.

Information needed for applying factors:

1. What type of horse barns are suitable for this climate?
2. How many horses does the average farmer in this community keep?
3. Why must one consider climate when building a barn?
4. Compare the construction used in the various types of barns, for strength, room, convenience, etc.
5. Compare the suitability of different materials for floor, walls and roof.
6. Compare the costs of various types of barns.

Related and General information:

Unsoundness found in horses due to poor housing.

Related field work, illustrations, laboratory and shop work:

1. Visit good horse barns in your neighborhood.
2. Draft plans of a good horse barn suitable for use on your farm.

Home practice:

References:

Stewarts - Engineering on the farm.

Wis. Station Bulletin,# 164;

Colorado Extension Bulletin, # 1 - 50 A.

JOB SHEET FOR STUDY GUIDE IN VOCATIONAL AGRICULTURE.

ENTERPRISE: Farm Work Horse.

JOB: #3 Building a Horse Barn.	Days: 2	Month: Nov.

Situations to be dealt with:

Barns need not be expensive to be servicable, Many horses do poor work because poorly housed. Poorly housed horses comsume more feed and are more susceptable to disease and consequent layoffs.

Pupil's Situations:

We have a good horse barn on our place; but I would like to know more about building barns, because next summer I will need to build a barn on our river ranch. I have four horses and three colts. Our barn at home needs a a new floor, and some repairing done on it.

Decisions that must be made:

1. What kind and type of horse barn to build?
2. How good and how expensive a barn shall I build on the river ranch?
3. What shall I use for a floor in our barn at home?

Factors of decisions to be made:

1. Types of horse barns
2. Type of farming.
3. Climate.
4. Construction
5. Material.
6. Costs.
7. Type of barn suitable for needs.
8. Amount of money available
9. Kind of floors.
10. Housing colts.

Job sheet continued.

Information Needed for applying factors:

1. What types of horse barnes are suitable for this climate?
2. How many horses does the average farmer in this community keep?
3. Why must one consider climate when building a barn?
4. Compare the construction used in the various types of
4. barns, for strength, room, convenience, etc.
5. Compare the suitability of different materials for floors walls and roof.
6. Compare the costs of various types of barne.
7. What type of barn will suit me bast for the river farm?
8. How much money can we afford to spend on the barn for the river farm?
9. How much room do colts need?
10. Should colts be kept in the barn or in separate stalls?
11. What kind of material is cheapest and easiest to get?

Related and General Information:

Unsoundness found in horses due to poor housing.

Related field work, illustrations, laboratory and shop work.

1. Visit good horse barns in your neighborhood.
2. Draft plans of a good horse barn suitable for use on your farm.
3. Make a door fastener for the barn door.

Home practice:

1. Help put in the new floor in the barn.
2. Put in window panes.

Job Sheet continued.

References:

Stewart - Engineering on the Farm.

Wis. Sta. Bulletin # 164.

Colorado Ext. Bulletin, # 1-50 A.

James Way Farm Buildings.

Farm shop Job Sheet No. 26. Hot Metal.

Explanations:

If the job sheets are put out in booklet form, they are preceded by a complete enterprise analysis which should include managerial jobs, sensory and motor operative jobs. Many of these complete enterprise analysis are now available in the various states. Boys carrying projects in an enterprise will need this complete list. The teacher will give instruction in the jobs included in the yearly teaching plan in class. The rest of the jobs must be taken care of at other times. Obviously, the teacher cannot teach everything to the boy. His father will teach him a great many things. Other things he will pick up thru observation or by trial and error. But the jobs should be brought to the pupils mind by means of the enterprise analysis sheet, to stimulate his activities. The teacher should check his learning process whenever possible.

Job instruction sheets need only be made for jobs included in the yearly teaching plan. It would be an endless job to make them for every job which might come up. They can be easily made from the data furnished by analysis and teaching layout sheets, already made out, by the teacher.

It is a good plan to furnish pupil's with a horizontal and Monthly Layout sheet so that they may list the jobs in the months in which they think the job should be done. It furnishes an extra guide and offers the pupil an oppertunity to check up on himself. When the job is done, he can check it off and it becomes a progress report.

G. Daily Program of Work. If work is individual at all it is evident that the daily program is likely to be modified. Some pupils work faster than others thus disrupting the daily program.

Under the Dalton plan every child makes his own daily program, excepting for times when he must attend conferences called by the teachers. In the Winnetka Plan, children are classified into"supervised study" groups and "self-reliant" groups, according to the teachers judgment. Those in the "self-reliant group arrange their own program very largely, the "supervised study" group usually is made up of pupils, that, misuse their time or spend it on favorite subjects; or who get into mischief.

Under either of these plans, the daily program in the old sense, disappears. "The very fact of individual work breaks down the necessity for rigid time tables. When the work becomes flexible to fit individual differences, the daily program, too, becomes flexible and adaptable." (1, Carlton W. Washburne, p. 238).

The following daily program is well adapted to vocational agricultural instruction, particularly, if long periods of from 60, 80, to 90 minutes are used.

1. Group activities - ten to fifteen minutes.
    a. Developmental discussion of a case job. (preferably taken from some member of the class). Analysis of case job, establishing case situations, decisions and factors.
2. Individual Study. - thirty to sixty minutes or the whole period, if necessary.

a. Pupils analyze their own job sheets and work at individual study and assignments. The teacher will assist, direct, encourage and stimulate individuals in study of problem.

3. Group discussion. - 20 minutes or longer.

a. Discuss problems arising from study or which have direct bearing on jobs being studied by the entire group. Group discussions often help the individual to solve problems.

The above program takes place one day, the next day this program may be changed because more time is needed for discussion, listening to special reports; or to engage in some class activity, such as a field trip, or laboratory demonstration. Occasionally a period is given over to entertainment, or for attending some agricultural exhibit at a county fair, or stock show. Some time may be taken for giving directions or for a talk by the teacher, or someone else.

At certain times a special group may need to get together to discuss some job which all students are not interested in. For instance the boys having swine projects may have a special program. It may facilitate matters to discuss it with just those interested in the problem. If the problem is of interest to all pupils difer it until the discussion period.

H. Conducting Class Work on The Individual Basis. Group pupils, with similar projects, together. When the slow and fast pupils are discovered place them in separate groups within the project group. They will thus be able to take up work together.

Place the slow pupils close enough to the fast pupils so they may get help from them. Permit pupils to confer with one another in low tones, upon permission from the teacher. Do not permit any pupil to speak in a loud tone and thus disrupt the study of others. Discipline must be rigidly maintained. An appreciation for the rights of others must be inculcated in the group to keep the problem of discipline from becoming a battle between teacher and pupils. Put mischieveous pupils under close supervision near the teachers desk.

Recitations will be abandoned in favor of individual study, class discussions and socialized and self-expressive activities. In abandoning recitations, considerable time will be saved which should be used to help individuals with their special problems. The pupil will use saved time, which accumulates in his favor, from one cause or another, for broadening his education, proceeding to the next job, or in doing extra work in the farm shop, or on self-expressive activities.

Pupils will reach different stages of the job activities at different times; some may be doing laboratory or shop work while others are studying. Pupils doing different kinds of work should not be allowed to disturb others any more than necessary.

Pupils still keep a classroom notebook and a project study notebook. The job sheet takes the place of "problems for study". Have holes punched in them so they will fit the regular

loose leaf notebooks, which are generally used. After the boy has completed the analysis of a job the teacher should check his analysis, to see if he has thought the job out properly. "Methods in the classroom must provide pupils with opportunities to form purposes, and if they form unworthy ones, the teacher must guide them until they form better ones." (3, Stuart A. Curtis,p. 96).

After the analysis has been checked the pupil is permitted to study the job and make notes. When his notes are completed the teacher should check his facts. If they are correct he may proceed to make a plan for doing the job. When the plan is complete, the teacher will read it and suggest changes to be made. The teacher should not dictate a plan for the boy. When the plan is complete, the job is finished, as far as the classroom work is concerned.

Individual instruction cannot be successfully carried out on the project until the jobs, to be done, have been studied in class and the plans for doing project work approved by the teacher. This is why project work is not the easiest place to start individual instruction.

Pupils will need to be encouraged to accept responsibility for doing work on their own initiative. Responsibility must be given to them or we cannot expect much development along this line.

Pupils must be put on their honor in the classroom, laboratory and shop to do their own work.

The teacher will move from one department to the other to supervise the work of pupils.

CHAPTER VII.

RECORDS AND TESTS.

A. Problem of the Chapter. Some formsof record keeping is necessary in individual instruction since each pupil is mastering each job at his own rate. It is the problem of this chapter to devise a system of records for keeping account of pupil's progress in doing jobs. Also a means of testing the effectiveness of individual instruction must be devised.

B. Records for classroom activities. If a system of records is not kept, ne means will be available for determining what progress is being made by individual pupils especially if the class is large.

The pupils can keep some records themselves, as was mentioned in Chapter VI. A Horizontal Layout sheet can be used for this purpose. The pupil checking off the job when he has completed it. He should date it when he starts and date it when he completes the job.

The teacher should make a chart for each enterprise and list the jobs down one side and the pupils name down the other. When a pupil completes a job, the date should be entered in the space opposite his name and the job he completed. He should then be given a grade in the class record book and his progress noted by comparing the date the job was completed with the time distribution sheet or horizontal layout sheet.

The chart will provide a graph of the progress of the entire class. A long series of dates after one pupil's name and a short series of dates after another Pupil's name shows the former pupil to be much more advanced than the latter. A glance at such a

record shows at once which pupils need stimulating and help. It will be necessary to have a different record sheet for each enterprise, or subject. See illustration of an Enterprise record Sheet on page 86.

C. Testing the effectiveness of Individual Instruction. In general educational fields, tests may be devised for testing every step of a lesson unit, but this is rather difficult to do in Vocational Agriculture. Factual information can be tested by prepared tests, but thinking and doing ability are hard to test, except by the judgement of the teacher.

If the pupil's information on facts are to be tested, an answer sheet should be prepared. This will enable the pupil to correct his own examination. Completion and tests can be used to good effect for this purpose.

The pupils note book offers a good opportunity for testing thinking, fact gathering, and planning ability. His thinking ability can be judged by his ability to correctly analyze the job. His ability to gather facts can be determined by an examination of his notes. His ability to make a good plan can be determined by judging the completeness of his plan for each job. Doing ability can be judged by determining how well he does the job in, shop or in his home practice work. This is largely a matter of judgment on the part of the teacher. Some states use a score card for scoring project work. In using a score card judgment has to be exercised.

Enterprise Progress Record Sheet.

Pupil's names (last name first)

Enterprise Job.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
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20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

L. D. Klemmedson.

The "enterprise record sheet" will tell the progress being made by each pupil.

With these different methods of testing efficiency of pupil's work, the teacher should be able to judge the effectivness of work being done under the individual instruction plan.

CHAPTER VIII.

DUTIES AND ABILITIES OF TEACHERS

A. Problem of the Chapter. The duties and abilities of teachers for conducting vocational agricultural instruction are too numerous to include in this thesis. These duties are listed on page 79, The Pennsylvania State College Bulletin, No. 22, Vol. XX, June 8, 1926. "Graduate work in Agricultural Education" by William A. Broyles. It it necessary, however, to call attention to some of the special duties and abilities of teachers necessary for conducting individual education in vocational agriculture.

B. Duties and Abilities of Teachers. "It is generally admitted that schools become vital only as they become human, and they become human only as they tend to individualize the unit personalities composing them. This process of individualization, is, morever, a socializing and co-operative process in which the teacher and the needy child work together in order that in the end the child may better fill his place, first in the school and later in society at large." (1, William Holmes, p. 38).

In order to do successful individualized work two things are essential in teachers: the right spirit and the right method.

Patience, sympathy, and cheerfulmess are essential to the right spirit in giving individualized instruction. Without the spirit which they engender, no teacher can succeed with individual pupils in large measure. By creating the right atmosphere in the room and the right attitude in himself, the teacher must seek to win the pupil's heart, and thru his heart lead him to exert his best effort.

The right method of individualized instruction.

1. The teacher goes to the pupil for giving the pupil needed assistance.

2. The teacher works to remove difficulties. In a low voice and with perhaps a pleasant word of encouragement or suggestion, the teacher directs the mind of the pupil to the difficulties.

3. The pupil is made self-helpful. The teacher leads the pupil to master difficulties himself, both by not telling him anything that by judicious questioning he can be led to discover for himself, and by not doing the pupils' work for him. The pupil learns more by doing a job himself, even though poorly, than by having it done for him. The fundamental principle of education is self-activity; the teacher's function is to find out just what the pupil knows and, with this knowledge as a basis, to lead him to see his way and to do the work himself.

4. Teach Pupils how to study. Individualized instruction furnishes an opportunity to teach pupils how to study. Many pupils fall behind in their work because they do not see the difference between the important and the unimportant. Through proper individualized instruction, they can be trained, or led to master printed material.

5. Individualized Instruction should be Wholly Individual; one pupil at a time. The encouragement and aid that come through individual instruction will make many a timid pupil self-reliant.

6. The Teacher Finds the Pupils Who Need Individual Aid. By examinations and testing, the teacher will be able to find the weak spots that must be strengthened

through individualized work. The teacher is to be the judge of who needs aid. He is not to wait for the pupils to ask for aid.

7. Record of Work. Keep a record of aid given a pupil in the class record book, and of progress made on the "enterprise record sheet".

8. Class Work. During the individual study period, the class is engaged upon profitable study. The teacher having put the job sheet in the hands of pupils, and given the proper directions, sees during the individual period, that they do study and in case a pupil at his own desk seems to need help, he can call him to the desk or go to the pupil's desk and help him with his problem.

9. Laboratory and Shop Work. In addition to work done in the classroom, the teacher will aid individual pupils with problems in the laboratory and shop.

10. Field Study. When on field trips, if a pupil has difficulty with the problem, the teacher will take him aside to aid him.

11. Project Supervision. The teacher sat off periods and in out-of-school hours will visit the pupils project to assist with problems which cannot be done in school. Many times, they can take the boy in their car to do a special piece of work.

12. Special Period Work. If the teacher has an off-period during the day, much aid can be given to retarded pupils; those who have been absent; or are falling behind in their work.

CHAPTER IX.

DISADVANTAGES AND DANGERS OF INDIVIDUAL INSTRUCTION.

A. Problem of the Chapter. There are certain disadvantages and dangers in individualized instruction. To determine the most important of these is necessary before they can be eliminated

B. Disadvantages.

1. The technique of individual instruction is still far too new to be definitely established.

2. The securing of suitable textbook materials for individual work.

3. The difficulty in preparing self-instructive material.

4. It does not fit present school facilities, Make-shifts are necessary, except in new buildings.

5. Teachers are not trained for individualized work.

These disadvantages are not easily overcome. It will take much experimenting to develop the proper technique of individual instruction. It will take time to prepare proper self-instructive materials and train teachers for individualized work. School facilities necessary will only come with alterations in old buildings and by proper construction in new buildings.

C. Dangers: There is danger in over-emphasizing individual education. Individual education cannot solve all the evils of poor methods in education. Many other methods have virtues of their own. There is danger of substituting a proven method with one which needs more testing.

CONCLUSIONS.

The need for individual instruction in vocational agriculture has become apparent, because of the varying life situations in which farm boys find themselves, on farms which vary in many respects from other farms. The farm boy, like other boys, must face an unknown future. He is an individual with varying capacities for learning and native ability. The more carefully the process and goals of education are analyzed the more the fact appears, that, the traditional class method of instruction has failed to make adequate provision for farm boys to express themselves as individuals, in self-directed activities. Perhaps this has not been a failure to recognize a need, but a lack of a method for meeting the need: A large amount of theory on individual instruction is available, but methods of organization and procedure are scarce.

This thesis has been an attempt to adapt vocational agricultural instruction to individual needs of farm boys. It is the result of two years of experience in teaching by the individual method. The experience was unguided because of the dearth of guiding information in this field, and the lack of precedent, except what could be learned from experience in the general education field.

An organization for instruction in vocational agriculture has been devised which is workable and which has adapted the present organization to individual instruction.

A method of procedure has been set up which is effective for conducting vocational education on an individualized basis. Further experiments will undoubtedly develop a better and more efficient method.

Individual instruction can become very confusing if a system of records and tests are not used for controlling it, so a system of records and tests were devised.

Some of the disadvantages and dangers of individual instruction have been pointed out to call attention to the fact that individual instruction is a relatively new development in education and cannot be expected to solve all our educational difficulties.

It may safely be concluded, that much can be done to adapt vocational agricultural instruction to individual differences, capacities and needs, of vocational agricultural pupils. Much can be done, also, without surrendering the obvious social values that inhere in class instruction.

APPENDIX A.

A YEARLY TEACHING PLAN

FOR A COURSE OF INSTRUCTION IN ANIMAL HUSBANDRY

LIST OF ENTERPRISES TO BE TAUGHT IN THE COURSE	WEEKS TO DEVOTE TO EACH ENTERPRISE	
	ESTIMATED	ACTUAL
1. Swine Production	6	
2. Sheep Production	6	
3. Dairy Production	3	
4. Poultry Production	2	
5. Farm Work Horses	1	
6. Special group jobs	~~14~~	
7. Special individual jobs		
8.		
9.		
10.		
11.		
12.		
Total for strictly advance work	32	
Time allotted for review work		
Time allotted for quizzes	2	
Time allotted for extras	2	
Total number of school weeks devoted to the subject	36	

A JOB OUTLINE

For the Enterprise of SHEEP PRODUCTION

Estimate number of weeks allotted to the enterprise 6 or 3 days.

JOBS TO BE CONSIDERED	DAYS TO DEVOTE TO EACH JOB AND MONTH IN WHICH THE JOB IS TO BE TAUG									
	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	SUMM
Class Jobs										
1. Establishing a flock	2									
2. Care of Breeding flock		3								
3. Care of pregnant ewes					4					
4. Lambing						3				
5. Growing out lambs								2		
6. Summer managment									2	
7. Shearing							2			
8. Judging					2					
9. Building and Equipment			2							
10. Special Group Jobs										
11. Buying Feeder lambs	2									
12. Feeding fattening lambs	1		2							
13. Control of death loss		2								
14. Control of pests				2						
15. Deseases of sheep				2						
16. Preparing mutton on the farm										
17. Specific individual jobs.										
18.	Time distribution can only be made from day to day. Many will be done outside of school.									
19.										
20.										
21.										
22.										
Total	5	5	4	4	6	3	2	2	2	NOT TO COUNTE SCHOOL

FORM 4—MULTIGRAPH SERVICE BUREAU, COLORADO AGRICULTURAL COLLEGE, FORT COLLINS

A JOB OUTLINE

For the Enterprise of Swine Production.

Estimate number of weeks allotted to the enterprise 6 or 2 days.

	JOBS TO BE CONSIDERED	DAYS TO DEVOTE TO EACH JOB AND MONTH IN WHICH THE JOB IS TO BE TAUGH									
		SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	SUMMER
	Class Jobs										
1.	Establishing Objectives for Growing Hogs.	1									
2.	Choosing the Breed	2									
3.	Selecting the breeding stock	2									
4.	Judging hogs		2								
5.	Care of breeding stock		3								
6.	Care of suckling sow and litter.						3				
7.	Growing out pigs									2	
8.	Marketing hogs			2							
9.	Special Group Jobs										
10.	Marketing shoats for breeders									1	
11.	Marketing meat hogs			1							
12.	Marketing breeding hogs					1					
13.	Developing breeding stock							2			
14.	Buying feeder hogs	1									
15.	Fattening hogs for market		1		1						
16.	Pasturing swine									1	
17.	Showing hogs					2					
18.	Butchering						1				
19.	Home preparation of pork						2				
20.	Keeping records on swine project	1									
21.	- - - - - - - - - - - - - - - - - -	-	-	-	-	-	-	-	-	-	-
22.	Specific Individual Jobs.	Time distribution can only be made from day to day. Many will be done out side of school									
	Total	7	6	3	1	3	6	2		4	NOT TO BE COUNTED I SCHOOL TI

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