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PREFACE

During the past eight years the writer has been associated with several phases of agricultural education, using that term both in its narrower sense of academic or vocational school agriculture and with the more comprehensive application to the general development and dissemination of scientific agricultural knowledge and practice. This experience covers a greater or less degree of contact with each of the following divisions of the work:

(a) Agriculture in the high school, in the earlier days of high school agriculture in Michigan. As assistant in the Department of Agricultural Education in the Michigan Agricultural College, during the year 1912-13, it was one of the writer's duties to visit, from time to time, in behalf of the Agricultural College, each of the high school departments of agriculture, with view to studying the situation and to rendering any assistance possible in the organization and improvement of the work.

(b) During the years 1914 to 1918 the writer was superintendent of the Menominee County Agricultural School, organized under an act to be hereinafter described. This is a type of school which has played a part in the progress of secondary agricultural education and the four years of opportunity to study its working, its product and the place it fills in our educational system has resulted in some very definite conclusions in the mind of the writer.

(c) Boys' and Girls' Clubs. During my year with the Department of Agricultural Education at M. A. C., referred to

above, as well as during my years with the Menominee County Agricultural School, I have been actively interested in this movement, as an important feature in the development of intelligent farmers for the future as well as a partial solution of the problem of keeping the bright boys and girls on the farm.

(d) Farmers' Short Courses. This has reference to the organization of a small body of farmers, locally, under some extension agency, not in the capacity of a farmers' institute, but for the purpose of receiving a more or less connected course of instruction in certain announced subjects.

(e) County Agricultural Agent, now more generally and significantly known, because of the organization of the Farm Bureau, as Farm Bureau Manager. The writer held such a post in a Northern Indiana county from July, 1913, to September, 1914, a year of experience which has enabled him to appreciate as he could not otherwise have done, the farmer's vital problems as well as the conditions which tend to impede the progress or to advance the cause of popular agricultural education.

(f) Agricultural Teacher Training. After being connected with the United States School Garden Army for nearly a year in the capacity of Assistant Regional Director, a work which was limited mainly to cities and villages, with no special bearing on the general subject of agriculture, the writer entered Syracuse University, September, 1919, as Professor of Agricultural Teaching in the Joseph Slocum College of Agriculture, continuing in that field until he was made dean of the college,

July 1, 1930. This has brought him into close relation with the New York system of vocational secondary school agriculture as carried out under the Smith Hughes act.

The following paper is an attempt to bring together such a series of observations growing out of the varied experiences indicated above as may point somewhat to sane and conservatively progressive policies in the field of agricultural education.

I

INTRODUCTION

The grafting of agriculture upon the high school curriculum had its initiation on the part of men whose business was education rather than of those whose business was farming. In the main farmers were skeptical. This skepticism but emphasized the need for the innovation. Farming was looked upon as a procession of manual operations. It has taken, is taking, time to popularize the idea that farming is a business. The common query was, what can the teacher do in school that cannot be better done by the father at home. To the extent that there was a subconscious recognition of the fact that the farm is the real agricultural laboratory the query was prompted by good sense. Too often, however, the motive was made clear by the further comment that the boy could learn all the farming he needed to know at home.

In a few cases the cause was injured by unqualified teachers, men whose qualifications were limited to a knowledge of the subject matter or men whose farm experience had been inadequate, as for example, the young man who taught that the silo should be opened at the bottom and the silage dug out from beneath.

Another objection to the introduction of agriculture into the high school was made on the ground of overcrowding the curriculum. Already, it was claimed, so many subjects were being taught that the work could be done but superficially.

Further, many fathers and, especially, mothers lacked sympathy with the movement because they were not ambitious that

their offspring should be further trained for an occupation that had meant only drudgery to them. The thought that farming could be made not only a business but a profession was not a popular conception.

The teaching of secondary agriculture is still too new to say what will, in the long run, be the guiding purpose. Will it be vocational, the making of better farmers, or will it be humanistic? In the earlier days the latter seems to have been the actuating purpose on the part of the professional pedagog, while the farmer patron of the school and the state and federal law-makers, when interested at all, hoped, thru high school agriculture, to help keep the boys on the farm, to make them more skilful farmers, and to increase the agricultural production.

The subject of materials and methods is closely allied to the educational purpose in view. Josiah Main, writing in the Popular Science Monthly in 1911, said: "The successful teaching of agriculture in the school along with the traditional courses depends, like all the rest, upon its being regarded and developed as a humanistic subject as well. It will have to make good pedagogically if it is to have a permanent place ..... Until there is a recognition of something more than economic ideals there may be danger of the industrial reform getting in the way of educational progress, to the ultimate detriment of both." He further says: "A usable pedagogy is necessary to the solution of this problem. If pedagogy does not afford the principles and terms with which to treat the subject it is a sign that we need a new pedagogy."

II

AGRICULTURAL EDUCATION IN MICHIGAN, 1912 - 1918

The right of agriculture to a place in the high school curriculum had been well established in 1912. The Department of Agricultural Education in M. A. C. had been organized some five years prior to this, its function being primarily to train teachers of secondary agriculture. In 1908 one school, North Adams, had ventured to add a four years course in agriculture to its curriculum. The experiment resulted satisfactorily, and by 1912 twenty-three Michigan high schools were employing teachers who were giving full time to the handling of a four years course in agriculture. These schools were in no wise subsidized by the state, as was done in a number of other states about that time, the only state aid offered these schools being that advisory service rendered by the Department of Agricultural Education of the Agricultural College.

These twenty-three schools did not represent all the high school instruction being given in agriculture in the state at that time. Many schools were presenting general courses in agriculture, covering one or two years, the instruction being given usually from a textbook in the hands of a teacher of natural science. Such a course was given, in fact, in 1906 in the High School of Traverse City, of which the writer was then principal. No doubt such instruction had some value, but was of importance educationally mainly because it voiced the consciousness on the part of school men, especially in the rural high schools, that agriculture was entitled to a place on the

high school bill of fare.

It was true in 1913 that there was not an established pedagogy of agriculture. A "new pedagogy" is in process of formation. The teachers of agriculture in most of the 33 Michigan high schools employing such teachers at that time, were fresh from college. They had no student experience in high school agriculture to guide them. There was no very definite goal toward which they were working, therefore they were at a considerable uncertainty as to what material to employ, and their methods were quite likely to be those that they were familiar with in college. Most of the present text books used in secondary school agriculture have been written since 1913, many of the text books of that time being of a general nature and designed for one, or at most, two-year courses. Laboratory work in the main followed the trend of that used in other science courses. One of the debated questions was whether the school installing a department of agriculture should provide a tract of land. In some of the schools a small plot was rented or loaned by some interested patron, and on these plots vegetables, grains and grasses were planted. In the main these plots served in the matter of nature study, but no real agricultural projects were carried, and little accomplished outside some observations as to varieties of common plants and experiments with unfamiliar species.

As stated elsewhere in this paper, the relation of the Michigan Agricultural College, Department of Agricultural Education, to the high school departments of agriculture in 1913 was

mainly advisory. The College undertook to interest and consult with boards of education, to prepare teachers for the work and to supervise the work of these teachers by sending a representative of the department from time to time to visit them. Such visiting constituted one of the principal duties of the writer during that year.

In handling this work there was no regular itinerary, no specific number of times the schools were to be visited. Those in the hands of the more experienced teachers, such as Hillsdale and St. Johns, received little attention, while those departments which had been recently organized or were being directed by inexperienced teachers, were visited frequently.

From a half day to a day was usually spent with a teacher on such a visit, his class-room work was observed, with attention to methods of development of the subject, nature of the subject matter, use of material, interest aroused on part of class, etc. Note was made and advice given regarding laboratory and other teaching facilities, such as plots of land and trips to neighboring agricultural plants. Superintendents, principals, and frequently members of boards of education were interviewed and students themselves engaged in conversation with view to ascertaining the status of the department, and especially to getting in touch with all factors that would influence its success. A glance back from the present point of observation reveals how experimental and uncrystallized the work was.

In the first place agricultural departments were established in high schools where there was no agricultural setting and no

agricultural foundation other than the desire on the part of school officials to have everything in the school that would insure its being up-to-date. The city of Muskegon was a case in point. Due to the energy and personality of the teacher a fairly successful course was carried for a number of years, but neither the principal of the high school nor the high school teaching force was in sympathy with the innovation, and in the main only such students were interested as were attracted by its novelty or the hope of finding something easy. There was not a farm for miles in any direction from the school and scarcely a possibility of developing one on the white lake sand of that region. The teacher of agriculture there has very wisely given way to a teacher of gardening, much of his work being done with the grammar schools of the city.

In some places it was found that agricultural teaching was not making the progress it should because of one or more of several reasons: Naturally there was some poor teaching and some teachers of unfortunate personality. More frequently it was the skeptical element on the board of education or among the school patrons who were throwing cold water on the enthusiasm of the few. In general there was a lack of a clear conception as to what was to be accomplished,- was agriculture being taught for agriculture's sake, was it being taught for education's sake, was it to be taught for the sake of applying related sciences, those sciences holding the leading role in the story, was it to be taught as itself a pure science, what was to be its place in our state system of education? Until agriculture could

establish its place -- we may even say until it can establish its place - in our educational scheme, or, specifically, in the educational scheme of any community, its tenure is bound to be uncertain. Until it can be made a vital, corporate part of that system it is liable to be treated as a barnacle, to be scraped off the first time the vessel is in dry dock.

Compare with those times the present status of secondary agricultural teaching. What is the present objective? What is the popular attitude today with regard to the work? What characteristics of an agricultural pedagogy are taking shape?

In 1912 nearly every state was recognizing agriculture as a subject of secondary instruction in some form, in established high schools or in special university, county, district or state schools of agriculture, with or without special financial aid from the state. It is of interest to a Wolverine to note that Michigan, without offering special aid to high schools establishing such a department, was the first to install a four years high school course in agriculture. Since then the Smith-Hughes act has somewhat popularized and crystallized the work. Its place has been made sure and its purpose more or less determined. By its terms secondary agriculture in this country is to be vocational. It is specified that the course is for boys who intend to become farmers, and further that one half the boy's time must be given to actual farming. Likewise the teacher is supposed to devote half his time to class room work and the other half to field work, and is employed for the entire year.

I am inclined to offer a criticism here, to this plan.

The act does not seem to me in harmony with our American system of education, which should open the door of any college of any rank to any man or woman who cares to enter. We offer a primary education which leads to our secondary schools, a secondary education which leads to college. Perhaps the boy who drops out along the way has not been specially fitted for a particular calling, but he has been more or less fitted to become fitted for a calling. I do not believe we should open educational gates to lanes that are closed at the other end. I do not believe the boy of 14, just entering high school, knows whether farming is or is not the most desirable occupation for him. His course in agriculture should lead to the farm, if, after four years of high school study, he finds that is where he wants to go. It should lead to the agricultural college if he finds that he wants and can get a higher education, and it should not close the door to a liberal or professional education. I believe the course should be so adapted to the high school curriculum that it will occupy a place co-ordinate with any other special course, as science or the classics, and that the students should be able to do the complete school year of work leading to credits of equal rank and preparatory value of other high school subjects; and further that the project work should be confined to out of school hours and vacation weeks, when boy nature is crying aloud for something to do and boy character is demanding that what he does be wisely directed toward the development of those qualities which the project seeks to inculcate.

III

THE COUNTY AGRICULTURAL SCHOOL

The County Agricultural School and other special schools of agriculture result from the thesis that agriculture is a peculiar subject, requiring peculiar equipment, and not adapted to the ordinary high school. The first state to establish the county agricultural school was Wisconsin, an act permitting their establishment passing the Wisconsin legislature in 1901. Under the terms of this act any county might establish such a school by providing grounds, buildings and equipment and offering courses of study that met certain requirements, and having met these conditions the county was entitled to financial aid from the state to the extent of one-half the current expenses up to a limit of four thousand dollars. There have never been at one time more than seven schools in operation under that law.

In June, 1906, a gentleman from Menominee, Mich., was invited to address the graduating class of the Menomonie, Wis., County School of Agriculture. He was much impressed by the nature of the work done and what he considered the possibilities of that school, and at once began a movement for the passage of an act in Michigan permitting the building of similar schools. With a business man from Sault Ste Marie, he spent some time with the legislature and in 1907 succeeded in securing the passage of an act almost identical with the Wisconsin act, authorizing the county agricultural school. During that same year grounds were secured, buildings erected, and a school of agriculture and domestic economy opened in Menominee, Mich.,

and a similar one in Chippewa County, about fifteen miles from Sault Ste Marie.

It may be said that the Michigan Agricultural College was not in sympathy with this act, it being held by the Department of Agricultural Education that the existing high school should be made the seat of secondary agricultural instruction, utilizing as far as possible existing educational machinery. The soundness of this judgment has been substantiated by the developments of the past 13 years, the Menominee and the Chippewa county schools having been the only ones established. The enrollment in the former has ranged between 30 and 60 students, while in the latter the attendance has at times gone down to nearly zero. A number of other states have since provided for the establishment of the county agricultural school, or schools of a similar nature, but few schools of that character have been built since 1912.

As fairly representative of that class of special schools, a brief description and some observations concerning the Menominee County school, of which the writer was principal for four years, will be given.

The school lies at the outskirts, but within the limits, of the city of Menominee. The grounds comprise 105 acres, about ten acres of which are devoted to campus, residences and farm buildings, 60 acres are under cultivation and the balance in wood and grove. The soil is extremely light, consisting mainly of white or gray sand, the timber growing on it being principally scrub oak and jack pine. The buildings include a main school

building, dormitory, blacksmith shop, large barn and cow stable, a hog house, a hen house, and a tool shed. The school is fairly well equipped for wood and blacksmith shop work, science laboratory, drawing, and home economics. A herd of about ten registered Jersey and Holstein cows are kept, with necessary young stock. One or two teams of mares, a number of pure bred hogs and a good flock of poultry are kept. By careful cultivation and judicious fertilization the soil has bean made fairly productive, growing reasonably good crops of clover, alfalfa, corn and rye. Some other small grains, sugar beets and potatoes are usually grown but with indifferent success. A fine young apple orchard of about 30 trees is just coming into bearing.

The course of study covers two years, students entering being supposed to have finished the eighth grade. English, arithmetic, geography, American history, civics and botany, shop work, including work in wood and iron, drawing, and agriculture are included in the curriculum. A diploma is granted at the end of two years.

At the present time all the farm work is being done by students, under the supervision of the Superintendent and Teacher of Agriculture. In fact, Superintendent Kebler informs the writer that no outside help has been employed for the past two years.

Thus we have here a fairly satisfactory educational plant and also a well equipped farm. The question naturally arises, what educational use is made of the farm?

Theoretically, and to an extent practically, the farm is the agricultural laboratory for an institution whose avowed purpose is to teach boys to become farmers. Good farming means, doing certain things right. If boys learn to do by doing, then we should expect them to learn to farm by farming, and we should expect that such a farm laboratory would provide a place where this might be done. As a matter of fact it has worked out that way only partially. Good use is made of the little orchard for exercises in pruning, spraying and general orchard practice. As stated above, the actual work on the farm is performed by students; farm machinery, fences and buildings are kept in repair; feeding rations are not only computed but actually mixed and fed and records kept of results. The process of butter making is carried thru from the drawing of the milk to the packing and marketing of the completed product by the class in dairying; of course the live stock and field products are used by classes in judging. Thus the farm gives opportunity for practice in performing the several manual operations, but as yet has not been used to any great extent in doing one important thing, that is, teaching how to operate a farm.

We can conceive of a man's being able to perform skilfully all the labor of the farm; yet not be a successful farmer, not able to launch an enterprise, see it thru to a successful finish and make it pay dividends. Right here is where the institution fails; here is where much of the high school agricultural instruction has failed; and here is where our agricultural colleges, from a vocational standpoint, have failed. Agriculture

has been taught in detail, but the details have not been synthesized into the one big project of farming.

We call this synthetic process "Farm Management." I do not believe it can be learned satisfactorily from books or lectures alone. It is a case of learning to do by doing. The project work as carried out by high school departments of agriculture under the Smith-Hughes law is a practical attempt to correct this defect. Its system of definite planning, studying the project, supervision by the instructor of work performed, records, cost accounts, salesmanship, and written conclusions seem to me to constitute the sanest work that has been done in farm management, and is the feature of our new agricultural pedagogy.

The weaknesses of the County Agricultural School are, as I see them:

1. The students are not on the school farm, under the eye of the instructor, during the most important months of the farming season. Most of them are on the home farms, which would be still better were it not that their work is not directed by the school, they make no report to the school -- they cease for the time to be students.

2. They have no part in the actual planning of the work of the farm, or any portion of the work. They are not made responsible for any farm project. There is no real laboratory work in farm management.

3. The course leads only to the farm. In fact it was a preamble in the minds of its founders that it should lead only there

rather than to a higher institution. The educational appetite may be whetted by his taste of knowledge, but at the end of two years the boy finds himself fitted to be only a good farm hand. Fortunately the broad-guage superintendent of the local city school has offered a full two years of credit to graduates of the agricultural school, a few of whom have entered the city high school. However, if the student wishes to prepare for college he must either take an extra year in high school or enter college with entrance conditions.

I believe this and similar schools should be closely affiliated with the state agricultural college, so that graduates of the one, while prepared for the farm if they desire to go there, would also be prepared to enter the higher institution. It would mean an adjustment of the curriculum of the school somewhat as well as a revision of the preparatory requirements on the part of the college.

4. The County Agricultural School is not a block in the mosaic of the educational system of the state. It is a little system by itself, requiring separate, and I believe, unnecessary machinery.

On the other hand, the special agricultural school has served a purpose and can, I believe, be made to serve a much larger purpose. As to its past, the Menominee County Agricultural School has quickened the life and agricultural interest of a farming population made up to a considerable extent of retired lumber jacks. It has been the center of agricultural missionary activity, and for years played the part of farm bureau, with its superintendent as farm bureau manager and its

instructors as his assistants. It has opened the way to some secondary school education for many boys and girls who otherwise would not have gone beyond the eighth grade. As to its future, I believe:

1. It should open a wider door of opportunity. Like the special agricultural schools of New York, it should be supported by the state, ceasing to be a county institution. A tuition fee should be charged, to be paid by the district from which the student comes, unless that district already offers high school opportunity for the study of agriculture, and this fee should be levied upon the district regardless of the age of the student, provided his qualifications are such as to admit him to the school.

2. As already suggested, the school should be so affiliated with the state agricultural college that all work which it offers would be acceptable as preparatory credit.

3. The course of study should provide for at least one major and one minor, closely supervised, agricultural project on land or with equipment provided by the school, or at the students home, at his own option. This would necessitate keeping the school open during the summer, as it should be. In case the student chose to do the project work at home, where he could not be under the immediate supervision of an instructor, arrangement might be made with the farm bureau manager in the student's home county to visit him from time to time.

4. The management of the farm should be done by a council consisting of students of the upper class, meeting regularly in a deliberative body, under the direction of the superintendent.

This council would study the equipment and recommend changes, plan the system of cropping, and in short assume control of the farm.

5. This school should reach out especially for the young man in any part of the state, who has not had, or who has not taken advantage of, educational opportunities until past the ordinary common school age. He should have -- does in fact now have -- an exceptional chance to retrieve his position and be fitted for a successful career as a farmer or even fitted to go on to college.

6. The school should furnish an opportunity for practice teaching, in co-operation with the department of agricultural education of the state agricultural college, for a limited number of men and women who have had the necessary academic and technical college training and desire to go into the field of agricultural teaching.

7. In conclusion, regarding this school, the county has here an educational plant whose possibilities are too broad to be limited by the boundaries of, and whose operation is too expensive to be borne by a single county, even with such aid as the state now renders. Its use should be so modified that, without diminishing the credit to the county for its establishment and in no wise lessening its educational value to the county, rather enhancing it, it could be fitted into a state system of agricultural education.

IV

THE "JUNIOR" MOVEMENT

Hand in hand with the growth of the academic instruction in agriculture has gone the development of the boys' and girls' club movement. At the beginning of the time covered by this paper corn clubs were popular in many sections. Boys living within given territory might be enrolled for such work by any person who was sufficiently interested to give the matter his attention. The purpose of the club was, interesting boys in the growing of corn. Certain rules and regulations were adopted regarding acreage, seed, records, exhibiting of product, etc., and some substantial prizes were offered. Excellent results were obtained with many of these clubs. Clubs for carrying on other projects were formed -- potato clubs, poultry clubs, pig clubs, and others.

During the fall of 1912 Mr. O. H. Benson of the Department of Agriculture, visited the Department of Agricultural Education at M. A. C., and offered to aid this state with Federal funds in the support of a club organizer, who should carry out his plan of organization. After due consideration it was deemed wise not to accept the offer at that time, there being other plans in process of development.

Out of this work of Mr. O. H. Benson has come that growth made possible by the Smith-Lever act, of the present system of club organization, with its national, state, county, and community leaders, and its enrollment of many thousands of boys and girls.

This work is educational in the best sense. Again it is the application of the principle of learning to do my doing.

It carries the urge of competition, the incentive of promised reward, the pride of accomplishment, the desire for ownership. It was the parent of the project in the teaching of agriculture under the Smith-Hughes law.

Some of the reasons for declining the proposition of Mr. Benson in Michigan in 1912 were these: It was felt that the club plan as outlined, while educational, was not attached to any educational organization -- that it should be related to and in charge of the schools. There seemed to be nothing of permanence about the club: after a project was completed the boy or girl was no longer a club member. The club automatically dissolved until another was formed. The club was not an organization but a group. Federal aid would involve Federal control to some extent, and to that extent would restrict the free initiative of the state.

With these points in view the Department of Agricultural Education at M. A. C. developed a plan of boys' and girls' club organization which we may call the Michigan plan. The organization was to be statewide, and was to be known as the Junior Agricultural Association. There was to be a county and a local organization, the latter to be called the Junior Agricultural Club. The county organization was made up of representatives of the clubs, and the state organization of representatives of the counties, though every club member was a member of the state organization. The operation of the club was to be under the direction of a local leader, preferably a country teacher, and the county organization under the county school commissioner.

The state director of the Junior Agricultural Association was the head of the department of Agricultural Education at the college. Officers of the state association were chosen from county commissioners.

A club was to be formed in a school district or community whenever a certain number of boys and girls who desired to become members petitioned the county commissioner that it be done, he either meeting the group in person to perfect the organization, or appointing a qualified adult to meet them.

Each club had its own by-laws, conformable to the constitution of the state association. Officers were to be elected and meetings held at stated intervals. Twice a year representatives were to meet in a county convention and county club matters discussed. Once a year each county was to send representatives to a state convention to be held at the Agricultural College. Each club was to choose an adult adviser, who was to attend the club meetings and confer with the members regarding their projects.

Qualifications for membership included certain age limits and the promise to conform to the by-laws of the club.

Each member agreed to carry out each year at least one project of an agricultural nature, or, for the girls, some housekeeping, sewing or garden project. These projects were to be specified and outlined in advance and accepted by the club, and reports on the progress of the projects were to be made from time to time at the club meetings. Each member might undertake a different project or the entire club might work on the same kind

of a project. Blank forms were published and issued to the clubs by the Department of Agricultural Education on which to report various projects, these reports when completed to be filed with the club secretary, and ultimately to find their way to the State Secretary at East Lansing.

The plan was put before the state convention of county commissioners in Grand Rapids in the spring of 1913 and adopted by them, and some 30 clubs started in various parts of the state, notably in Newaygo, Kalamazoo and Kalkaska counties. The writer resigned from that work the following July but the work was pushed by his successor, and the report of the department of Agricultural Education for 1914 stated that about 60 active clubs were in operation, with a total membership of about 1500. About this time, the Smith-Lever law having gone into effect, it was deemed advisable to co-operate with the Federal division of boys' and girls' club work, under Mr. Benson, carrying out the plan which has since obtained.

Several purposes were sought in this Michigan Plan, some of which it was felt the Federal plan did not offer:

1. Training boys and girls to organize and co-operate. These are great words in the story of the social and economic progress of farmers.

2. Teaching its members how to officer and conduct a public meeting, with practice in public speaking.

3. Arousing the interest of communities of boys and girls in farm and home matters.

4. The development of character, of habits of observation,

accuracy, system, industry, judgment, in short all those educational qualities which have given value to the home project as it is now carried out in the teaching of agriculture in the secondary schools, introducing a new pedagogy to the teaching profession.

5. Above all, this plan places the club work under the guardianship of the schools, where I feel that it should be, because it is educational; because there is opportunity to correlate the work with such academic subjects as English, arithmetic, geography, nature study, civics; because the organization is made more permanent; and because it would lead to the rural teacher requirement of more agricultural knowledge and keener appreciation of rural life. That this judgment is sound is borne out by the fact that even under the Federal plan, organized as it is by the Department of Agriculture, independently of any school system, the club organizer and the club leader doff their hats to the country teacher and say, permit us to come to your school and enlist your boys and girls with your help, in this education work.

The plan may have seemed at first glance somewhat complicated, but it was not more so than any machinery that would have gained the result sought. The expense involved in staging it was not greater than that under which the work was subsequently done. It would have required time and a certain amount of educational campaigning to interest county commissioners and teachers generally in club work, but the fact that that would have been necessary was proof for the need for having that very thing done,

and might have ultimately resulted, here and there, in a much needed renovation of the office of county commissioner.

V

FARMERS' LOCAL SHORT COURSE

Progress in agricultural education in the public schools has not been made without a corresponding awakening of interest in better farming on the part of adult farmers. In fact we could scarcely have had one without the other. It is not our purpose here to discuss the cause of this awakening, but rather to review what has been done and to refer to such agencies through which progress has been wrought as the writer has been connected with.

The first of these was the one-week farmers' courses, Six of these were conducted in various parts of the state during the winter of 1912-13, one in company with the late W. F. Raven and five with Comfort A. Tyler. These courses were usually arranged by a local teacher of agriculture, who attended to the advertising, providing rooms and other necessary details. In the main the course consisted of four series of lectures and conferences, two each day by each of the two conductors, each series adhering to one line of instruction, as feeding dairy cows, growing corn, alfalfa culture, etc.

The attendance at these courses was exceedingly varied, ranging from five to seventy-five farmers. Sessions were held both forenoon and afternoon, the attendance at the forenoon sessions usually being small. Naturally those who enrolled were the most progressive men in the community, and in the conferences there were many exchanges of valuable experiences and ideas.

As to the value of this work I would say that it did not secure the results it should have done, though no doubt sufficient was accomplished to warrant the expenditure of time and money. In the first place, the courses were handed to the farmers as a free-will offering from the state, something that had not been asked for and, on the part of the many, not wanted. Usually the agricultural teacher would announce that such a course would be held at a specified time and place, and farmers were urged to be present. They came often in the spirit of confering a favor on those who were handling the course. No enrollment fee or other expense was attached, and, as is usual in such cases, held to be worth by many, I believe, about what it cost. Had the farmers themselves taken the initiative in the matter, as they might have been led to do, and had there been a guaranteed enrollment with a fee of a dollar or two, the course would have assumed more importance in the eyes of those whom it was intended to benefit. In fact, I believe this plan was later adopted with good results.

However, the community farmers' short course was a step in the right direction. It was a moving away from the old Farmers' Institute, with its one or two days of unrelated lectures, and an attempt to do extension work in a more systematic way. It introduced a bit of the college short course to the local community. It brought a good number of farmers into contact with college men and college ideas, and it aided, I believe, in giving a standing to the then new department of agriculture in the high school.

Those of us who participated in conducting those courses probably received more benefit than any who sat under our lectures. The writer has been instrumental in establishing several such courses, both in Indiana and in Northern Michigan, and he has been able to avoid many of the mistakes that were made then.

VI

THE COUNTY AGENT

The Land Grant College, the Experiment Station and the County Agent constitute the great triumvirate of modern agriculture in the United States.

In 1913 the legislature of the state of Indiana passed an act providing, among other things, for the teaching of agriculture in the village and rural schools, and incorporating in the same act a provision for co-operating with the Federal government in the establishment of the county agent. By the terms of this act, if any citizen, group of citizens, or association, should deposit with the county treasurer the sum of $500 and request the appointment of a County Agent, the Board of Trustees, corresponding in a measure to the Board of Supervisors of Michigan, was bound to employ such agent. The candidate must be recommended by the state leader of county agents and by the Board of Trustees. His salary was paid one half by the state, one-fourth by the county and one-fourth by the Federal Government. The county agent was under the supervision of the County Superintendent of Schools, thru whom he reported to the county board. He occupied the anomolous position, usually, of being paid a higher salary than the superintendent under whom he worked, and of being under a man -- or woman -- who ordinarily knew about as much about agriculture as the average member of a school board knows about schools. The county agent was supposed, among other duties, to direct the instruction in agriculture in the schools.

Unless both superintendent and county agent were men of amiable disposition, broad vision and unusual forbearance, jealousy and friction were liable to arise, because of the larger salary paid the latter, because of the prestige which he might enjoy in the eyes of the schools, the popularity he might win because of the nature of his work, and because of his lack of regard for the authority of his immediately superior officer.

The writer was persuaded to accept an appointment as county agent in Porter County, Indiana, and began work there July 1, 1913. I found that the demand for such an official had come from a comparatively small number of farmers, re-enforced by a group of business men, but under the law the appointment was imperative. The county school superintendent was in scant sympathy with the movement, and while a number of the trustees were open to conviction and willing to be shown and two or three of the twelve well informed on the subject and in sympathy with the work, an embarassing per cent of the number were ready to throw a wrench into the machinery at every opportunity.

At that time the County Agent movement was young. No trails had been blazed and we were all groping more or less in a wilderness of what we were fully aware was a perfect tangle of opportunity for service. It was necessary to educate farmers as to the meaning of the job and to gain their favor and support. To do this it was imperative that something be accomplished and that the accomplishment be fully advertised. That meant making friends with the press. If the thing that was accomplished were somewhat on the spectacular order, so much the better. In the

writer's case, a friendly farmer, a sick alfalfa field and a farmer-poet-reporter on the leading daily of the county constituted the opening wedge.

There were other sick alfalfa fields to be visited, many of which needed lime. Lime had to be, was being, shipped into the county from Illinois. That led to a search for a local supply. Marl was the answer to the question. No one knew of any. The geological formation of the land led to the belief that it might be found in the county. Finally an excellent bed was discovered, near the center of the county, easily accessible, and covered by only a thin layer of muck. This was the thing spectacular. The papers made much of it. The county agent had earned his right to an existence. He had paid back to the county all he would cost. Incidentally interest was increased in the liming of a sour soil and the growing of alfalfa.

It was felt by the State Leader and those associated with him that there was need for some local organization of farmers to co-operate with the county agent, and this need was felt most keenly by the agent himself. My first constructive study in the new position was turned to this question. The county agents were the capillaries of a system in which the experiment station was the heart and the college the arteries. It was necessary to be able to come quickly in touch with every farmer in the county. Market exigencies, outbreaks of contagious plant or animal disease, notices of extension activities and other propaganda demanded it.

About 100 representative farmers of the county were invited to attend a meeting one afternoon at the courthouse, the need of

an organization of farmers to co-operate with the county agent was placed before them, and a plan presented which was adopted.

The organization was called the Porter County Better Farming Association. In its motive and purposes it was the forerunner of the Farm Bureau, since established. The township was the unit of organization, the township branch being complete in itself. The president of the township branch was a director in the county organization. A small membership fee was charged. Monthly meetings were to be held in each township, the dates so arranged by the county board of directors that two meetings should not occur on the same evening, thus enabling the county agent to attend all meetings. Most meetings were held at schoolhouses, and teachers and students gave valuable assistance.

As a means of reaching the farmers of the county and interesting them in the projects of the county agent the organization became very effective. In most of the townships the meetings were held quite regularly. The directors held monthly meetings at the county seat. They included some of the best farmers in the county, and rendered material aid in carrying forward the following projects:

An alfalfa campaign, lasting two days, in which a meeting was held at some farm home at one or more points in each township.

A seed oats and seed potato campaign, with talks and demonstrations on the formalin treatment for smut and scab.

A four days' Short Course for farmers and housekeepers, held at the county seat and very largely attended.

The organization of a cow-testing association, the second one in the state.

The reawakening of interest in the county fair, and putting on, after a lapse of three years, with no use made of the fair ground except for private purposes, one of the most successful fairs ever held in the county, and showing a financial balance of about $700, instead of a deficit, as had been the custom.

The work of that busy 14 months as county agent, including visits to farmers for almost every sort of advice, -- a new kind of silo to be inspected, June grass to be eradicated from an alfalfa field, a 24 mile drive over almost impassable roads to tell a farmer that his hogs were dying from pneumonia instead of cholera and to advise regarding their housing, a new weed to be investigated; talks on agriculture at every kind of meeting, from teachers' conventions to Sunday School picnics; accumulating and placing before farmers hundreds of bulletins; and other services such as every county agent finds it possible to render, demonstrated the need for this new institution. It also demonstrated the versatility of qualification for the office, including a wide agricultural training, both in college and in practical experience, the ability to teach either adults or children, the ability to speak on every kind of a subject, fluency with the pen as well as with the tongue, tactful in dealing with people, a good mixer, industrious and not afraid of overtime work, resourceful, irreproachable in character, an organizer and a leader. In view of all this, the wonder is that there has been so small a percent of failures among the hundreds of men who have filled such positions during the past ten years. The further wonder is that not more stress has been laid by our land grant colleges on the special training necessary for county

agent work. It is a job that demands the highest collegiate and professional training, and should offer a salary commensurate with those requirements.

Before the end of the year, I may say, the place of the county agent was fairly well established, and there was no disposition on the part of the Board of Trustees to discontinue the work. Farmers had learned that he would not meddle with their affairs or impart personal advice unsolicited. He had been able to give substantial aid to the rural teachers in their new task of teaching agriculture. The way had been paved for more constructive assistance from him in matters of farm management, and, perhaps best of all, the foundation had been laid for a well-organized, active Farm Bureau.

The experience in Porter county convinced me that the greatest need to be met by the county agent, a need which I believe has been receiving a considerable attention since then, is not in the details, such as how to grow alfalfa or feed hogs, but how to manage a farm as a business proposition. He should so secure the confidence of the farmer that he will be called in as a real adviser. His calls upon the farmer should not be pastoral calls nor society calls, but he should go on to a farm and study it as an enterprise in which dividends are the objective. This may mean that he will give a day or two or more to a single plant, studying every detail, its productive power; the relation of investment in live stock, equipment, land and operation; studying marketing practices and possibilities; looking for the leaks.

A series of such studies as this would be the most potent factor in teaching a farmer to study his own business and also in encouraging coöperative organizations for economic purposes.

VII

AGRICULTURAL TEACHER TRAINING

As suggested elsewhere in this paper, the field of agricultural instruction in the public schools demanded a new type of teacher training, a new pedagogy. Under the Smith-Hughes act, states accepting its terms are required to provide for such training.

In September, 1919, the writer accepted an invitation to take charge of the Department of Agricultural Teacher Training in the Joseph Slocum College of Agriculture, at Syracuse University, Syracuse, N. Y. This is not a state institution, receives no state or Federal aid, and is therefore not subject to Federal control. However, like every other educational institution in the state of New York, it is under the general control of the Regents of the University of New York. In its Department of Agricultural Teacher Training, it aims to meet all the requirements for the preparation of teachers to take positions under the regulations of the New York State Vocational law.

The State Department of Vocational Education in New York has specified very definitely about seventy semester hours of required college credit for candidates for agricultural teaching. Of these requirements, four hours are in the introduction to education, four in general methods in vocational education, and three in "agriculture in the high school." The remaining hours cover the whole range of general agricultural subjects, including Animal, Dairy and Poultry Husbandry, Agronomy, Horticulture, Rural Engineering and Rural Economics and Sociology. In the past, students preparing for teachers of agriculture in the Joseph Slocum College have taken the same courses required of

all students during their Freshman and Sophomore years. In the Junior year a general requirement for all students working for a Bachelor's Degree has been the subject of Rural Sociology, and in the Senior year at least one course in Farm Management. In addition to the State requirements, our students have been given extra work in Farm Mechanics, notably a Senior course in Shop Practice with view to special preparation for high school teaching in both Wood Work and Forge.

The most serious problem in our teacher training has been that of supervised practice teaching. To be of value it should be done under conditions similar to those which the teacher will face when he actually assumes control of a high school course in agriculture. The seasonal presentation of the subject, the organization of material frequently which cannot be carried into the class room, the attitude of mind brought to the subject by a class of rural pupils, planning, supervising and correlating the projects, all require that the work be done, not on a class called in to be practiced upon, but right in the established agricultural department of a high school.

In Syracuse two plans were put forward: First; apprenticeship teaching. It was proposed by the State Specialist in Agricultural Education that during the student's Senior year he be placed for a number of months in some high school agricultural department as assistant to an experienced teacher, to work without pay, or to receive, if terms could be so arranged with the school board, merely enough to pay living expenses. It was stated that this was the plan to be followed at Cornell, in the State Agricultural College. We were unable to learn of any

specific cases where it was actually carried out.

Objections to the plan were manifest. It would mean that the student must secure credit hours during 3½ years in college to meet graduation requirements, except such hours as could be credited for practice teaching, an unwise thing for any but the exceptional student to attempt, and sometimes an impossible thing because of schedule conflicts. Or it meant that the candidate for a teaching position be required to take a half year in addition to his four years baccalaureate training. This plan might be satisfactory if government funds could be used to support and remunerate the candidate with the same liberality with which they are used in educating prospective officers for the army. Without such aid candidates will be very likely to take positions offering immediate returns.

The second plan which was proposed and which the State College was said to be intending to adopt, was to place an assistant in the department of agricultural education in some neighboring high school with whom terms could be arranged, to supervise the work of student teachers who would go out to the school from the college two or three half days a week for a semester. It was proposed that the supervisor be on the pay roll of the college, but that the school furnish the equipment.

The main objection to this plan was the expense involved as compared to the number of students trained. It would seem out of the question to give practice work to more than four students each semester in this way, and they would not be in position to give much attention to home projects.

The plan which at present seems to be most feasible harks back to those early days in Michigan. It is to give the men the full four years of technical agriculture and pedagogy, and then place them in positions on probation on salaries commensurate with their inexperience, where they will be the regular teacher; then to have visits made to them as frequently as may seem necessary by a representative of the Agricultural Teaching Department of the college, who shall spend as much time with them as seems necessary, helping them to solve their problems and to correct their errors.

The teachers could submit to the supervisor plans and outlines; at least two meetings of the probation class should be held at the college during the year with the supervisor and a representative of the State Department; and each probation teacher visited at least twice by the State Specialist. On completion of a year of satisfactory work of this sort, the probationer would be qualified to enter the ranks as a regular teacher of agriculture.

I believe this plan will secure most satisfactory results. The men will be on the job thruout the year and come in contact with all phases of the work. They will have a sense of responsibility that will keep them keyed up to their best effort. The prestige of being <u>the</u> teacher of agriculture instead of an apprentice will be a constant spur. On the part of the supervisor, his visits to different communities with their varied interests will be of especial value to him in his instructional work.

I wish to say a word here regarding the general character and caliber of the men who enter the teacher training work. To my mind they are rather outstanding as serious minded and capable young fellows. About four out of five of them are Christian men. They include the more mature of our students, and practically all are men of some experience either as teachers or in industry or business. I believe what is true of this class in the Joseph Slocum College of Agriculture is generally true in the State Colleges. This is certainly ground for an optimistic outlook in the solution of the multitude of problems connected with this new phase of education.

Regarding the collegiate course of study for agricultural teachers, I feel that we have not yet entirely provided for the training that should be given. Something of a revision of our own course of study will go into effect in the fall of 1921. Under this the agricultural teaching group will cover the following work:

(Referring to the number of hours a course is given, the semester hour is understood.)

Bacteriology, 6 hrs., 3 hours of general bacteriology and 3 hours of dairy bacteriology, preparatory to a course in market milk.

Botany, 9 hrs., including general agricultural botany and a course in plant diseases.

Chemistry,8 hrs., inorganic. As soon as sufficient teaching help and laboratory room can be made available in the chemistry department, this will be increased to 12 hours, including a brief course in qualitative analysis and 4 hours of applied organic chemistry.

Economics, 3 hrs., general.

English, 9 hrs., 6 of composition and rhetoric, general principles and themes, and three semesters in the junior and senior years, one hour each semester in public speaking.

Farm Economics, 6 hrs., general farm management and farm bookkeeping.

Geology, 3 hrs., especial attention being given to dynamic, and a brief survey of historical geology.

Genetics, 3 hrs., pre-requisite to plant and animal breeding. (I question the wisdom of this order.)

Mathematics, 2 hrs., offering a brief course in plane trigonometry.

Mineralogy, 3 hrs., pre-requisite to advanced soil study.

Zoology, 9 hrs.,- 3 of general entomology and 3 of economic entomology.

Agronomy, 10 hrs., including crops and soils.

Agricultural Law, 3 hrs.

Animal Husbandry, 7 hrs., 4 in types and breeds of farm animals and 3 in feeds and feeding.

Dairy Husbandry, 5 hrs., 2 hrs. in milk testing and 3 in market milk.

Drawing, 3 hrs., leading to simple representation of farm plots and building plans.

Farm Engineering, 2 hrs., laying out ditches and drains.

Farm Mechanics, 12 hrs., 8 of which are in wood shop, forge and cement work, and 4 in farm machinery and farm motors.

Horticulture and Plant Propagation, 8 hrs.

Poultry Husbandry, 6 hrs., including a 3 hour course in general farm practices and another of 3 hours in incubators and brooders with special reference to project and club work.

Principles of teaching, 4 hrs.

Psychology, general and vocational, 4 hrs.

Teaching Vocational Agriculture, 6 hrs.

Rural Sociology, 3 hrs.

Seminar, 2 hrs.

I believe this covers the necessary college work about as well as can be done in four years, and with the year of probational teaching under college supervision, will fairly well equip the candidate for meeting the requirements of the Vocational Department. However, the knowledge of subject matter should be so broad and so general that we would urge a young man preparing for this field of work to take, if possible, an extra year, covering the technical agriculture and science subjects during his baccalaureate training, and putting in a fifth year in professional courses, and we hope to see some provision made whereby this fifth year can be used to earn for the candidate a Master's Degree. This has not yet been worked out with our graduate school, but we believe it can be done.

VIII

A CONTRIBUTION TO PEDAGOGY

In this paper we have referred several times to the "new pedagogy" of agriculture. This idea deserves further attention. The student who has followed the ordinary course in one of our Normal schools or colleges and nothing further, has missed the point. This new pedagogy works out along two special lines; first, partially as a result of the war, there is a new psychology. We are scrutinizing the pupil now with view to determining not how well he will fit into our cast-iron mold, but with view to determining what he can do. He comes with certain physical development and physical possibilities; he comes with certain mental development and mental possibilities. It is the business of the teacher to be able to inventory the development and to discover the possibilities. For want of a better term we call this "vocational psychology." A part of the training of a prospective teacher should be in the technique of making the necessary investigations and discoveries regarding the physical and intellectual mass of material which makes up the student.

Another line over which the new pedagogy works is that of carrying the instruction out into the regular affairs of life. Does a boy wish to learn farming? Then have him farm. It is not sufficient to sit with him in the classroom and talk about visionary cattle and poultry and corn, but he must be taken out and given actual project work with the herd, with the flock, and in the corn field. The mental reactions that result from the purely classroom approach to the subject will be wholly idealistic. The reaction from the actual carrying out of the work,

the program varied to meet the special conditions; the constant exercise of judgment to dispose of the multitude of questions that arise, the satisfactions that come from securing looked-for results, all this is practical, and is the kind of training that must be had sooner or later before the boy can become the farmer, and perhaps before he can determine whether or not he wishes to become a farmer. The visionary, the idealistic, has its place, but it should be based upon the practical notions resulting from the carrying out of the actual project.

The value of the mental training growing out of a well conducted project is not likely to be overestimated. Carrying out the project involves imagination, initiative, system,and, above all, judgment, with all that goes to make up judgment. It involves the solution of a series of problems. Whatever we do in life, whether it be the building of a bridge, the writing of a book, the trying of a case at law, the healing of a patient, we are confronted by a series of problems. He who can most clearly state, most logically analyze, and most accurately solve those problems, is the one who is most successful. In the undertaking of a project a good teacher of agriculture will require the student to state and analyze the problems before him. Is the project that of rearing and caring for a flock of chickens, problems such as these arise: "What provision can I make for housing? How shall I start the flock, by hatching or purchasing chicks? If by hatching, shall it be with the incubator or the natural method? What feed? Where shall it be obtained most reasonably?" Etc., etc. Every one of these problems requires

the exercise of judgment and the mind reactions which occur are those which are bound to produce the desired results in the training of the pupil. This to my mind is the greatest pedagogical contribution which agriculture in public schools has made. If the result upon the pupil is to lead him into the profession of farming, is to produce a generation of better farmers, well and good, but that is incidental.

IX

RELATION BETWEEN THE AGRICULTURAL HIGH SCHOOL AND THE AGRICULTURAL COLLEGE

Since we have been discussing both secondary and college agricultural education we should not leave the subject without some observations as to the influence the secondary agricultural education is having on the work of the agricultural colleges.

I believe that occasionally the work of the secondary school in agriculture has been an embarrassment to the college. When agricultural colleges opened their doors there was no great body of teaching material available. The relationship between agriculture and the natural and physical sciences had not been established. There had been no experiment stations to furnish the agricultural world with a body of empirical knowledge. Even the technique of agriculture was simple as compared with present practices, under the development of modern machinery, high bred live stock, the influence of factory methods and our complex social organization.

The evolution of the college curriculum has been along three lines, namely, scientific, technical and social-economic. Of these the technical field is where the student from the school of vocational agriculture is likely to feel that he is "pumping sand." Much of the "practical" work which the colleges have been giving, as pruning and spraying orchards, treating grain for smut, dressing beef, testing milk, etc., can as well be handled by a boy of 14 as by a college student, and in fact is included in the agricultural high school curriculum.

This overlapping also extends to some of the semi-scientific work, such as is involved in elementary soil studies, judging

live stock and farm crops and the principles of heredity and selection in breeding.

All this means that the agricultural colleges must modify both curricula and the composition of certain courses.

A letter was sent to 20 of the prominent agricultural colleges scattered over the United States, asking, (1), what changes had been made on the college curriculum, and (2), what effect had been noted in the nature of the college work as a result of the teaching of agriculture in the secondary schools. There was great similarity in the replies received and as gleanings from these replies the following statements can be made:

1. As yet comparatively few candidates for admission to college have presented entrance credits in agriculture, but the number offering such credits is rapidly increasing, most noticeably in the middle and western states.

2. Some of the states, notably Missouri and Kansas, report that "the introduction of agriculture into the curriculum of the high schools has resulted in the elimination of a material amount of elementary agricultural teaching in the college." A number of those heard from predict that this will occur in the near future. Others express the opinion that it will always be necessary to offer this elementary work, because of the fact that there will always be students entering the agricultural colleges who have not studied agriculture in the high school.

3. A few of the colleges - and this will be increasingly true - have received a sufficient number of students with preparatory training in agriculture to warrant the formation of sections

for more advanced study of the scheduled subjects than the main body of the freshman class.

4. Dean Farrell, of Kansas, writes that vocational agriculture in the high school is increasing the demand for economics, public speaking, history, civics and sociology, partly because these subjects are required of candidates for teaching positions in agriculture. I suspect that this increasing demand is in part due to the gradually broadening agricultural outlook, resulting from the various educational agencies that are at work among rural people.

5. All recognize that we are in a transitional stage and that we are facing a problem both of curriculum and of teaching matter that must be solved in the near future. President Butterfield has at this time written the presidents or deans of a large number of eastern colleges proposing a conference to discuss this matter.

In the Joseph Slocum College of Agriculture, few students have presented high school credits in agriculture. Our policy is to excuse such students from such courses as would be a repetition of high school work and permit them to elect other courses in their stead.

I believe the ultimate effect of high school agriculture upon the work of the college will be:

1. A more flexible curriculum, possibly in line with that of Cornell, where there are no fixed requirements in agricultural subjects, the entire course being practically elective. It is required, however, that the student shall elect a specified number of hours from each of several groups of subjects indicated.

2. More advanced undergraduate work, with less stress upon the technique of farming and more upon research.

3. The offering of opportunity for a greater degree of specialization.

4. Increasing stress upon the social sciences and an increasing demand for the so-called humanistic subjects.

I would close this division of my paper with an observation regarding the desired preparation of a candidate for admission to an agricultural college.

Dean Mann, of the New York State College of Agriculture, writes me that the students who have presented preparatory credits in agriculture have so far, in the majority of cases, been unsatisfactory, not prepared for the more exacting college work. He admits, however, that there has not yet been a fair test as the agricultural departments of high schools are only in the process of organization. Professor Waugh, of Massachusetts, in his book on "The Agricultural College", recommends the prospective college student in agriculture to avoid agricultural courses in preparatory work, but to stress the fundamentals which have long been held to be the basis for collegiate work, especially English, mathematics and physical and natural sciences.

Inasmuch as Professor Waugh advocates a reversal of the order in which technical agriculture and the so-called supporting sciences are usually given, claiming that the science should be based upon the knowledge of agriculture, we cannot help thinking that he is a bit inconsistent in not favoring the placing of those subjects earlier still in the college student's scheme of work, and offering it to the student during those years when

powers of observation are even more keen.

If Dean Mann states a general condition, I believe the answer is not in the nature of the subject of high school agriculture, but rather in the way it has been taught and in the calibre of students who have elected that subject. I believe that in many cases we owe to the high school agriculture the fact that the student has arrived at college at all. However, I believe that the high school teacher of agriculture and the pupil himself should see to it that habits of deep study, reflection, the mastering of the difficult lesson, are formed. If the subject of agriculture does not invite this studious attitude of mind, then the high school course in agriculture should be strongly supplemented by such subjects as history, mathematics and physics, for the habit of study is the greatest asset the student can have.