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The Place of Agriculture In the Secondary School Program

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Difficulties in Adjusting Agriculture To the Secondary Schools

SINCE AGRICULTURE has become an accepted subject in high schools throughout the United States, many questions have been raised concerning its proper place in the curriculum and its potential contributions to the general purposes of secondary education. Answers to some of these questions will be proposed here by describing, first, the chaotic manner in which agriculture has been developed in the secondary schools and the resulting weaknesses that are commonly found in the programs; second, several recent promising developments; and, third, a possible future program in which agriculture may satisfy the requirements of the Federal Vocational Education Acts and also meet the general education needs of the secondary school.

In the United States generally, agriculture has come into the secondary school program as a vocational subject, financed in part with funds appropriated to "fit for useful employment" persons "who have entered upon or are preparing to enter upon the work of the farm or the farm home."¹ Many school officials have found it difficult to believe that their pupils are ready for the serious and definite preparations for farming provided by the Smith-Hughes Act. They have believed that a thorough and comprehensive guidance program should precede any such specialized vocational training. The common practice, however, has been to enroll boys in these federally aided classes at the beginning of their high school careers and before preliminary guidance has been furnished.

Some of the founders and administrators of the federal program of vocational education have also objected to high school vocational agriculture. They have said that the federal funds were appropriated for more serious preparation for specific vocations than can ordinarily be given to boys of secondary-school

¹The Smith-Hughes Act, Public Law No. 347, 64th Congress, Senate Bill 703, Section 10.

age. They have complained that the vocational education in agriculture commonly offered in our secondary schools has been both weakened and changed from the program originally intended. For many years, more persons have been enrolled in adult trade and industrial classes conducted under the same act than have been enrolled in high school classes in trades and industries.

It was largely an historical accident that the federal funds for agricultural education came to be used primarily for teaching high school pupils. When federal funds first became available, farm boys were beginning to come into the high schools in increasing numbers, and it was easy to organize them into classes in agriculture. It was not customary at the time for farm boys to continue their education past the high school period. Few conceived that farmers would ever return to school after reaching maturity. Consequently, the funds first made available for agricultural education were spent, for the most part, in the high schools. In many schools, the traditional use of these funds persists.

There have been curious results from attempts to use federal funds for agricultural education in the high school. All sorts of compromises have been made. In some schools the agriculture taught has been more nearly non-vocational than vocational. Town and city boys without farm experience, without serious intentions of engaging in agricultural pursuits, and without opportunities for farm practice have been admitted freely to many classes. In some high schools, vocational agriculture has been a required subject for all boys. In some states, most of which are located in the northeastern part of the United States, only a third to a half of the persons who have taken two or more units in vocational agriculture have later engaged in agricultural occupations.

However, a study completed by Dr. F. W. Lathrop of the U. S. Office of Education in 1940 shows the possibilities of high school agriculture as a vocational subject.² Dr. Lathrop deter-

²Data from the author, U. S. Office of Education, Washington, D. C.

mined the occupational distribution of a random sampling of 33,283 persons who had taken two or more units of vocational agriculture while in high school. The data were secured for 40 states and Hawaii. Only 13.4 per cent were dead or lost to the investigator. He found that 72.6 per cent of those still alive and accounted for were in some agricultural occupation. Of those engaged in agricultural occupations, 81.4 per cent were in farming. The occupational distribution for the North Central states, which include Illinois, was almost the same as for the nation at large.

In some states and communities, where there has been a serious effort to limit the enrollment in high school vocational agriculture to pupils likely to become farmers, the classes have been very small and the costs per pupil very high; half or more of the rural high schools in most of the agricultural states have so few bona fide students in vocational agriculture that they cannot justify departments of vocational agriculture unless their service to persons beyond the high school age is extensive.

The rural high schools, commonly handicapped financially, have often sought every dollar of federal aid they could get, sometimes without too much thought of the use which could be made of these funds. Because federal funds could be secured for vocational agriculture and no federal funds were available for non-vocational agriculture, the tendency has been to maintain only courses in vocational agriculture, whether or not these have been the most useful and appropriate courses which could have been provided. There has been no development in agriculture paralleling the development of industrial arts, household arts, and general business training as subjects of general education.

Some Promising New Developments

RECENT SIGNS indicate that we are awakening to the situation into which we have drifted, and several new developments will aid us in extricating ourselves.

There has been a marked extension in recent years of adult education in agriculture through the public schools. According to the annual reports of state boards for vocational education to the U. S. Office of Education, the enrollment in federally aided adult classes in agriculture in the United States increased from 17,370 in 1924 to 253,691 in 1940. During those sixteen years the enrollment in high school classes in vocational agriculture increased from 72,270 to 342,342. Thus, while there was an increase of 373 per cent in high school enrollment, there was an increase of 1,360 per cent in adult enrollment. Since 1940, although the enrollment in high school classes has decreased because of war conditions, the enrollment in the adult program has increased because of the provision of federal funds for the food production war training program. The enrollment in war-production training classes alone in the school year of 1942-1943 is more than 500,000.

Improved programs of educational and vocational guidance are functioning in our secondary schools so that pupils are becoming capable of making more intelligent vocational choices at an early age. It is becoming increasingly common for them and for their parents to insist that training in line with these choices be provided in the high school. Many high schools are beginning to provide for the systematic study of agricultural occupations in the first course in agriculture; others include the study of agricultural occupations in home room programs; others use required units in English classes and so on. In Minnesota, the first year of agriculture orients pupils to the entire field, while the last three years of agriculture provide specific agricultural training for those pupils who seem to be ready for it.

Increased attention is being given in the vocational courses in agriculture to the broader purposes of secondary education.

Personal and social development, training in sound thinking procedures, and the broadening of interests are emphasized. Pupils who leave the field of agriculture after several years of study of vocational agriculture carry with them much that is of value in other fields.

In a few schools the possibilities of non-vocational agriculture have been demonstrated. Pupils who do not expect to enter agriculture and those who are still undecided enroll in such courses in large numbers and give them serious attention if they are well taught.

Units which are primarily agricultural are being taught in courses other than agriculture and are taken by large numbers of pupils. Some of these units are home landscaping, gardening, livestock and crop improvement, farm safety, government and the farmer, agricultural cooperatives, farm credit, farm insurance, and farm accounting and budgeting.

There has been such an increase in the number of workers needed for agricultural occupations other than farming that O. E. Baker of the United States Department of Agriculture now estimates that approximately the same number of new workers is annually required for these non-farming agricultural occupations as for farming itself—about 160,000 for each. Many young people from the farms, villages, and small cities are more interested in some of the newer agricultural occupations than in farming; consequently, the range of persons interested in the study of agriculture is extended. Workers in non-farming agricultural occupations include hatcherymen, nurserymen, veterinarians, agricultural teachers and extension workers, farm-organization specialists, farm journalists, dairy manufacturers, rural electricians, salesmen of feeds and fertilizers, farm credit specialists, and soil conservation workers.

A Program for the Future

Groups to Be Reached

TO OUTLINE a desirable program of agricultural education, we should probably start with an analysis of our high school personnel to determine the needs of the various groups and individuals for whom agricultural education should be provided. We can recognize eight general groups:

1. Prospective farmers.—Such a group can be segregated. Those who constitute it are ready for specialized training for farming, and it would be a mistake to delay it, provided that this training is balanced by an adequate program of general education. If the pupils are carefully selected, two-thirds to three-fourths of the group will engage permanently in agricultural occupations. This percentage is as high as that for persons graduated from University professional schools who follow their lines of training permanently.

2. Prospective farmers' wives.—This group is difficult to identify, but it is large and important. The farmer's wife is often more important than the farmer in achieving success for the farm family.

3. Prospective workers in agricultural occupations other than farming.—The occupations in which these people engage are so varied that the contribution of the high school to their occupational adjustments will usually consist only in offering them occupational counsel, in teaching them certain fundamental principles common to most agricultural occupations, and, occasionally, in arranging for apprenticeships. In a few situations there may be enough workers in certain occupations other than farming to warrant special courses for them; Miami, Florida, for example, provides high school courses for nurserymen and landscapers.

4. Prospective owners of farm property.—While the number of these persons is rather large, they will not submit to the program designed for prospective farmers. Their influence on the very important problems of farm tenancy and soil conservation is obvious.

5. Boys and girls who do not intend to enter agricultural occupations, but who are currently living on farms.—Many people attest that their lives have been enriched, and their farm experience has made a larger contribution to their general education, because of high school courses in agriculture.

6. Persons whose prospective business or profession or whose social relationships will bring them closely in touch with farm people.—This category includes nearly all the non-farmers in the agricultural sections of the country. The relationships among town and country groups, and among individuals within those groups, are improved by appropriate courses in agriculture.

7. Consumers of agricultural products.—This classification includes everyone. Although in courses other than agriculture much is being taught regarding the purchase and use of farm products, agricultural courses are making a unique contribution to consumer education.

8. Prospective citizens who will share in making public policies affecting agriculture.—The conditions under which farmers must live and work are being determined increasingly by public policies which all of us help to make. Often these policies are discussed in classes in the social studies from a purely urban point of view, and in agricultural classes from a purely agrarian point of view. There should be teamwork at this point.

These differences in the needs of various groups must be respected in the organization of courses in agriculture. They determine whether federal or local funds may be used. Federal funds may be used in teaching prospective farmers and boys now living on farms regardless of their occupational destinations. In at least one state, Massachusetts, they are used to teach girls who are engaged in or who expect to engage in farm life. It has usually been held proper to include in federally aided classes boys who are currently employed in, or who expect to be employed in, occupations closely related to farming. It has been contended of late that training for these occupations should be given under the distributive education provisions of the George-Deen Act. Since most of the small schools which teach vocational agriculture do not have courses in distributive education, it may be assumed that for some time to come, workers in agricultural education other than farming will get such special training as they can through courses in vocational agriculture. The other groups of pupils who do not expect to follow agricultural occupations will have to obtain their education to meet their special requirements in agriculture through non-vocational courses, which receive no federal aid, and through adaptations of natural science, social science, and other subjects.

Objectives for Each Group

A graduate class at the University of Illinois made up of teachers of vocational agriculture recently formulated a set of objectives of agricultural education in terms of the groups within a

community to be served. It is recognized that the objectives are all-inclusive in that the entire field of agriculture is covered. Obviously, the objectives must be adapted to the particular grade level under consideration, and the content included in the course must be modified so that student needs, interests, and abilities are recognized. The list of objectives follows:

1. To increase the ability of present and prospective *citizens* in the following respects:
 - a. Share interests and recreations rural in nature.
 - b. Maintain desirable town-country relationships.
 - c. Deal ethically with others in agricultural affairs and relationships.
 - d. Participate in making public policies affecting agriculture and rural life.
 - e. Decide for or against active participation personally in country life and agricultural occupations.
 - f. Produce certain agricultural products for their own use.
 - g. Utilize agricultural products as consumers.
 - h. Find and use agricultural information and assistance.
2. To increase the ability of present and prospective *farmers* to manage a farm:
 - a. Plan farming operations.
 - b. Arrange a satisfactory basis of land tenure.
 - c. Select a type of farming.
 - d. Organize and reorganize a farm business.
 - e. Use farm budgets and records.
 - f. Produce high-grade farm products economically.
 - g. Market products.
 - h. Manage and conserve the soil.
 - i. Protect against farm risks.
 - j. Finance a farm business.
 - k. Utilize wisely the returns from farming.
 - l. Provide and maintain farm machinery and power equipment.
 - m. Provide and maintain farm buildings and utilities.
 - n. Buy and sell farm property.
 - o. Manage farm labor.
 - p. Find and develop new sources of farm income.
3. To increase the ability of present and prospective *farmers* and their *families* to live happily in the country:
 - a. Use and appreciate the special advantages country life affords.
 - b. Attain permanence of residence and a sense of security.
 - c. Provide attractive, comfortable, and convenient farm homes and surroundings.
 - d. Produce a diversified supply of home-grown food.
 - e. Make a farm healthful and safe.

- f. Develop desirable farm-family relationships.
 - g. Maintain desirable relationships with other farm families.
 - h. Realize the possibilities for wholesome and enjoyable use of the facilities which the farm and the countryside provide.
 - i. Enjoy rural art and literature.
4. To increase the ability of present and prospective *farmers* and their *families* to work with other farmers and their families for the improvement of agriculture and country life:
 - a. Participate in community organizations of farm people.
 - b. Share in general farmers' organizations and farmers' cooperatives.
 - c. Assist in movements for the improvement of churches, schools, parks, and other facilities; health and sanitation; electrification, communication, and transportation; home architecture and rural landscaping; other phases of community planning.
 5. To contribute to the success of persons engaging in or expecting to engage *in agricultural occupations other than farming*.
 6. To contribute maximally to the *general aims of education*.

These objectives are predominantly general, rather than vocational. They meet nearly all of the needs of a general education program, as described by A. J. Brumbaugh in the following quotation:

There can be little doubt that certain basic educational needs are common to all students. (First,) the relation of individuals to the issues of government is growing more and more complex; through the ballot they express their judgments concerning governmental policy, concerning the qualifications of candidates for public office, and concerning issues local or national in scope—peace and war, capital and labor, freedom and control. (Second,) as private citizens they will or should become interested in civic enterprises, aiding, for example, in promoting musical organizations, community forums, little theatres, church federations, public clinics and health centers. (Third,) they will engage in a home life in which social adjustments may be simplified through the application of biological and psychological knowledge, both in personal relationships and in the care and training of children. Of no little importance in this area is the application of the principles of elementary economics in budgeting and spending the family income. (Fourth,) they will have available some leisure time, the proper use of which will call for skill in sports, taste for good reading, and the ability to enjoy music, art, and other forms of recreational activity. There is a real danger in creating leisure without educating people to use it wisely. (Fifth,) they will need to maintain a high level of physical and mental efficiency involving a wide range of information regarding various phases of physiology and hygiene, and the regular practice of fundamental rules of healthful living. (Sixth,) they will need to explore the field of vocations

with a view to choosing a career. (Seventh,) they will need adequate command of language for the purpose of communication, of reading intelligently, and as a vehicle of thought. (Eighth,) interwoven with all of these needs is the demand for clearly defined values as a guide to intelligent action commonly referred to as a philosophy of life, that qualitative factor aimed at by the advocates of courses in religion and ethics.³

Adaptations to Individual Differences

In addition to the differences which have been noted in high school groups as based on present or prospective relationships to agriculture, there are many other differences which must be recognized in an adequate program. Some pupils have lived on farms all their lives, and others have no actual farm experience; some have ability to learn quickly, while others have not; a number are motivated by intense interest, while others are in school merely to comply with state attendance laws. Probably there is no subject in which there is greater need for attention to individual differences. Probably also there is no subject in which these differences can be better cared for, because classes are relatively small and the instructors maintain contact with the home situations of the pupils and know the latter as individuals. "We all know," says one Illinois principal, "that a teacher of agriculture is no good unless he can individualize his instruction. We should recognize the same principle in the other high school subjects."

Organization of Courses

The administrative organization of a program in high school agriculture should be given careful study. In the larger schools, organized on a 3-3 basis, the sequence in vocational agriculture is sometimes limited to the senior high school, while a non-vocational introductory course is offered in the last year of the junior high school. The entire State of Minnesota has its agri-

³Brumbaugh, A. J., "The Case for Prescription," *Current Issues in Higher Education*. Chicago: University of Chicago Press, 1937, pp. 40-41. (Proceedings of the Institute of Administrative Officers of Higher Education, Vol. IX.)

culture organized on this plan. In most schools, however, the number of bona fide vocational pupils is limited, and four courses, alternated so that two are offered each year, may well be given. There are few schools with sufficient enrollment in vocational agriculture, if enrollment is adequately selective, to justify the maintenance of four separate classes in agriculture each year. Usually, one or more alternations should be practiced. One of the most desirable arrangements is to alternate the courses in the second and third years of the high school, and to provide for the freshmen and the seniors in classes specially designed for them so that the sequence as a whole can be properly introduced and summarized.

A definite sequence of courses in vocational agriculture should be developed. For fifteen years there has been a growing tendency, which has now become nearly universal, to label these courses Agriculture 1, Agriculture 2, Agriculture 3, etc. The old classification into agronomy, animal husbandry, farm mechanics, and farm management has commonly been dropped. It had arisen from the classification of departments in the colleges of agriculture; however, teachers of agriculture in high schools found no reason to hold to this classification, and many reasons to depart from it. Farming involves the integration of information and skills from all the specialized agricultural fields. Training for farming must provide much practice in solving problems of the types farmers encounter. If such problems are to be solved, the pupil cannot be restricted in solving them to facts from a particular area. Most of them relate somehow to all of the recognized areas. The new arrangement provides also for adaptation to the growing maturity and to the expanding interests of the boys. Under the older plan a course in soils taught to juniors in college was frequently taught to freshmen in high school. Simple and difficult phases of farm mechanics were taught to juniors in the high school. The newer, cross-sectioned arrangement makes it possible to teach appropriate phases of soils or of farm mechanics in each of the four years of high school. Extension of instruction in one subject over four years has also

been found to result in more thorough instruction and in more out-of-school use of what is taught. One of the principal reasons for cutting across the former subject-matter lines is that many of the boys' projects are continuous throughout the four years. Class time is set aside for study and for discussion related to the projects. In some schools, which have extensive project programs, most of the class time is given to work related to the projects. It is considered good practice in some quarters to base the course of study wholly on the projects. The most common projects involve livestock and crops; thus there is likely to be continuous study of these two fields at least throughout the high school period. Two of the greatest values of the new arrangement are that the boys are started with a general view of the entire field of agriculture, and that their interests are kept well balanced throughout the high school period. The older arrangement tended to overemphasize one phase of farming at a time and to neglect the relationships among farm enterprises. These must be seen if a balanced view of farming is to be developed.

Supervised Practice.

There has also been a change in conceiving the supervised practice of pupils enrolled in agriculture. The Smith-Hughes Act provided that there should be "six months of supervised or directed practice on the home farm or some other farm" for each person enrolled in a class in vocational agriculture. Those who wrote this section of the Act probably meant it to be taken literally, that is, they intended that each person should spend six months full-time each year in well-rounded experience in the activities of farmers of the type he was preparing to become.

Massachusetts has probably come nearer than any other state to carrying out this provision of the Act. In the county agricultural schools of that state, it has been the common practice, from the beginning, for students to attend school for six months during the fall and winter, and to spend six months in farm work under selected conditions and with supervision during the

spring and summer. In Massachusetts high schools, where pupils attend during the entire school year, they devote an entire half-day to agriculture, and they are excused from their classes in agriculture for farm work under supervision on those days when their home projects require attention. Under these conditions, boys training for farming learn to perform all the farming operations incident to year-round farming.

An arrangement similar to the Massachusetts plan was worked out under the stress of war conditions in 1942 at Chicago Heights, Illinois. The teacher of agriculture there, Mr. E. W. Rowley, was devoting half his time to adult classes and half his time to high school classes. His two high school classes were transferred to the afternoon. On the afternoons when there was field work to be done, these classes were dismissed, and Mr. Rowley spent his time working with the boys in the country. Individuals were not excused unless all members of the class were excused. Classes were dismissed for field work only. Each pupil was required to attend classes for at least 34 weeks to earn his credit in agriculture. The farmers appreciated the arrangement very much. It provided for the farm boys without disturbing the rest of the high school. It made possible work experience at a time of year when some of the most important things are done on a farm, without interfering with the general education of the boys.

While this practice of permitting youth to attend school a part of the day and to work on a productive agricultural project for the remainder of the day is not new, since it was practiced rather extensively in manual-labor schools during the nineteenth century, it is a step in the right direction in many places at the present time. The war emergency has led to an acute shortage of farm labor. School authorities may accomplish two ends by adopting this plan: labor will be furnished, and the youth will obtain work experiences. Such work must be adequately supervised, to be sure, and it should be definitely correlated with the school program if youth are to gain the maximal benefits.

Boys and girls who live on the farm have always had an opportunity to gain more work experiences than youth residing in urban areas. It is generally agreed that such experiences make the youth more employable, develop in them desirable attitudes toward work, lead to the formation of good work habits, furnish excellent exploratory occupational opportunity, raise their morale by giving them a status and position in the group of which they are a part, and mature them economically. While educators have always agreed upon the theoretical desirability of providing these experiences for all youth, it has been difficult to do in practical school situations. Recently, the National Youth Administration, the American Youth Commission, and others have stimulated tremendously this desirable practice in education, and as a consequence, thousands—but too few thousands—of high school and college students are engaged in many types of worth-while work experience. Those types which involve the agricultural occupations include projects in landscape beautification, in the construction of farm buildings, in milk testing, in soil conservation, in irrigation, in repairing farm equipment, and in demonstration gardening.

Two examples of work experiences of these types are found at Holtville, Alabama (population, 125) and at Sedan, Kansas (population, 1,948).

The Holtville school is a rural high school located in open country some thirty miles from Montgomery, Alabama. The high school draws 275 students from an area of 500 square miles.

Since the school is essentially a rural school and considers its main purpose to be a preparation for more effective living, the emphasis on farming methods and technics is very strong. One innovation is the school refrigeration plant, composed of four storage rooms of varying degrees of frigidity. When a farmer butchers a hog or calf he brings it to school; and the students, under the direction of the science teacher and agricultural adviser, cut up the carcass and store it. The farmer pays a small fee for the locker in which the meat is stored.

The school has a chicken hatchery which is run by the boys and girls. The farmers bring the eggs and pay a reasonable fee for having the eggs hatched. Feeding of chickens, poultry diseases, and the like, are all studied in connection with this actual experience. The school

also maintains a hickory-smoke-house for curing hams. How to build a smoke-house and cure meat is studied in connection with this activity.

A linotype and a print shop owned by the school are operated by the students. They take orders from various small stores in the vicinity, print visiting cards, marriage announcements, and the letterheads on the school's stationery. A small profit is always divided by the school and the workers.

The school operates a bank from which the students can borrow money to buy whatever they need. The bank is run by students under the supervision of the business education teacher. Much of arithmetic and business practices are learned here, such as bookkeeping and typing.

There are, of course, many communities in which it is not now feasible or desirable to do as much real work in the school as is done at Holtville, Alabama, but there are hundreds of rural high schools where such activities or adaptations of them would provide both work experience and badly needed community services.⁴

Sedan, Kansas. The organization of any work program in the school should ideally take into account the entire student body. The program at Sedan, Kansas, nearly does so. All the students who wish work fill out an application on which they explain their work experience. After the applications have been filed and checked, the most desperate cases are assigned N.Y.A. jobs. The board of education sets aside money to pay others. Contacts are made with the service club and commercial organizations in the community. The school then functions as an employment bureau. Some boys are given experience in peddling bills; others are given janitorial jobs in drug stores and in the post office. A few girls are employed as stenographers; others will stay with children and wait on tables. Both boys and girls may be grocery clerks and dish-washers. When no jobs are available, other means are resorted to. In the winter of 1940-1941 two boys fixed a tractor to a power saw and cut some fifty ricks of wood. The school, acting as solicitor, sold the entire fifty ricks for the boys at two dollars per rick. The money was divided among the workers, and at least ten boys profited in some way from the activity. Two other boys secured Christmas trees from the surrounding territory and sold them through the school.

The Sedan High School has been able to rebuild and renovate the entire plant by using in-and-out of school N.Y.A. youth. In 1937 the plan of revamping the entire school grounds and preparing athletic facilities was undertaken. A modern field-house including a dressing room for the visiting and home teams with an office for the director and storeroom for supplies has been built. A lighting system for night football was erected, and bleachers to seat 800 people were constructed. The field-house was built from native sandstone which was secured

⁴American Association of School Administrators, "Schools and Manpower—Today and Tomorrow," *Twenty-First Yearbook*, 1943, pp. 46-47.

without cost. The bleachers were made from oil pipes secured from the Prairie Oil and Gas Company at no cost to the school. Native lumber was bolted to the frame to furnish seating. Instead of using high-priced telephone poles to mount the lights, towers were built from gas pipes, and on each tower was mounted a battery of four 1500-watt lamps. The towers were erected at a cost of approximately eight dollars for labor; in addition, the construction furnished work experience for many boys.

During the last academic year a vocational shop was built under N.Y.A. supervision. The local school board supplied inexpensive material, and the boys did much of the interior work in the vocational shop. Much interest was shown in the hog-scalding vat which was made from an old boiler by two N.Y.A. youths. After the boiler had been cut in two, a brick furnace was built underneath it. The N.Y.A. youths who prepared the scalding vat received work experience for which they were paid. The Future Farmers of America boys operate the butchering unit in the vocational shop as a service to farmers. For fifty cents they will butcher a hog; the money received is placed in a fund to enable the boys to go to the State Fair. The community receives at low cost a service for which there is a social demand. Boys furnish a service to their community and also enable the organization which they represent to receive an experience which might otherwise be impossible.

At the present time the second unit of exactly the same size is being built to accommodate home making. When it is completed, there will undoubtedly be work experiences for young women comparable in general to those that have been described for boys.

The activities at Sedan, Kansas, are an indication of what can be done with modest resources if the school administrator believes in providing work experience both through the regular program and through judicious use of the N.Y.A. resources at his command.⁵

Similar programs of this type are under way in the agriculture departments of hundreds of schools.

The provision of the Smith-Hughes Act for "six months of supervised or directed practice on the home farm or some other farm" may be further understood by noting that the funds are to be spent for the education of persons "who have entered upon or are preparing to enter upon the work of the farm or the farm home." It was expected that most of the persons enrolled in these classes would be engaged in farming rather than in attending

⁵Jacobson, Paul B., editor, "Youth at Work," *Bulletin of the National Association of Secondary School Principals*, May, 1941, 25:1-144. (Only pages 27-30 are quoted here, as reprinted on pages 275-77 of *General Education in the American High School*, North Central Association of Colleges and Secondary Schools, Scott, Foresman and Co., Chicago, 1942.)

school and that there would be no difficulty in arranging at least six months of farm practice for them. The placing of vocational agriculture in the high school and the adoption of a minimum standard of one project, often a miniature one, seem in the light of these considerations to be a clear perversion of the intentions of the founders, if not of the legal provisions of the Act under which the federal funds are disbursed. Of late, most states have developed programs in the direction of the original purposes of the Act. Projects of the traditional sort, enlarged and extended, still form an important part of the program, but improvement projects, the introduction of new practices upon the farm as a whole, and the systematic acquisition of farm skills have been added. Improvement projects are typically family projects, such as improving the dairy herd, landscaping the farm home, providing for a fruit supply for the farm home, and developing a farm shop. Dozens of new farm practices, some narrow and some quite broad, can be introduced during the high school period by boys on their home farms with a little help from the teacher. Farm boys do not automatically acquire all the skills a farmer needs; if the teacher, the boy, and the boy's parents have in mind the skills the boy needs, arrangements can be provided for their acquisition at home or at the school.

The inclination of a boy to seek opportunities for practice and for the application of his class instruction is one of the best indications of the sincerity of his vocational intentions. Instead of selecting boys, who, regardless of their circumstances, will conduct a project as a minimum requirement for enrollment, it would be sounder to choose the pupils to be enrolled upon the basis of their inclination to use their opportunities for practice. A farm boy with ample opportunities for varied farm practice who carries only one project of minimum scope may be a poorer risk than a town boy who utilizes to the limit his small opportunities for practice.

Many principals are concerned about giving additional school credit for project work. Ordinarily it does not seem to be neces-

sary or desirable. Project work should not need the extraneous motivation of school credit; it is financially profitable, interesting, and obviously valuable as experience for anyone who intends to become a farmer. It is an essential part of a course in vocational agriculture for which one unit of credit is already provided. No pupil should be allowed to believe that he can earn one unit of credit in vocational agriculture without any practical work, and that he must be paid off with additional credit if he is to do the project work expected of him. Furthermore, in granting the one unit indicated, improvement in the pupil's skills and understandings as applied to the practical work should be considered. This necessitates continuous evaluation, and it means that credit may be given for one project and refused for a similar project because of variations in the abilities of the pupils concerned at the beginning of the work. Usually the additional credit the pupil would obtain for such projects is not needed for graduation, or if it is needed, it takes the place of credit for subjects urgently needed for his general education.

Agricultural Organizations

A chapter of the Future Farmers of America has an important part in the training of the vocational agricultural group. This organization is regarded as intracurricular and as such entitled to a share of the class time, if adequate provisions in an activity hour are not available. The ideal arrangement appears to be one in which the boys elect at one and the same time to participate in the classwork, the supervised practice, and the F.F.A., which together constitute the program of vocational agriculture at the high school level. The F.F.A. provides training in cooperation and leadership indispensable for prospective farmers.

There have been objections to the Future Farmers of America on three principal grounds: (1) A national organization of high school pupils requiring out-of-state travel by some of the members is undesirable. Both of these have been discouraged in dealing with pupils in other subjects. (2) There is danger of domi-

nation over such a youth organization by a few adults who may come to control the national organization to the extent that we may get an arrangement, similar to the Hitler youth movement, by which farm youth may be exploited for the political advantage of some adult group. (3) The organization is much like the high school fraternity. After much experience with high school fraternities, these organizations have been generally banned.

It is true that there are dangers at all these points, but they have been pretty well guarded against. Most of the delegates to the national convention are boys above high school age. Boys may remain active members for three years after being graduated from high school. A national committee of state supervisors of agricultural education is advisory to the boys' organization, so that adult influence upon it is well spread over the country. The two most common objections to high school fraternities are avoided: there are no secret meetings; membership is open to any and all high school pupils in vocational agriculture.

In weighing the importance of these objections, it is important to consider the status of high school agricultural organizations before and after the organization of state and national groups. There have been agricultural clubs in the high schools since the beginning of the teaching of high school agriculture. They remained weak and ineffective until the national organization was formed in 1928. Local groups receive a great deal of stimulation from state and national groups. An agriculture department which has a strong chapter of the Future Farmers of America is a totally different sort of department from one which does not. Interest is heightened, the program of the department is broadened, and the pupils become partners with the teacher in the department's program in schools in which the Future Farmers of America groups are effectively used.

There have been objections to the Future Farmers of America also from those who believe that we do not need two national organizations for boys of high school age and that the 4-H Club program is adequate for all our needs. It should be remembered

that we tried for nearly 20 years to use 4-H Clubs as high school agricultural organizations. Finally we gave up trying. The difficulties were largely the same as those experienced when the high schools used athletic coaches who were not members of the teaching staffs. The 4-H Club program is planned and administered by people entirely outside the schools; the Future Farmers of America is a school-managed organization. Again, one has only to compare the situations in which the 4-H Clubs and the Future Farmers of America have been used to become convinced that the Future Farmers of America is vastly superior as a school agricultural organization. This is not to deny that 4-H Clubs have made many excellent contributions to the education of youth.

The Future Farmers of America is, of course, not the only high school agricultural organization. Many others have been developed, usually as subsidiaries of Future Farmers of America chapters, for producing and marketing livestock, for soil improvement, for providing services such as milk testing and spraying for farmers, and for other purposes. These have usually been found to be very desirable.

Interrelationships of Classwork, Supervised Practice, and Agricultural Organizations

The general pattern which is now emerging for the organization of high school work in vocational agriculture could be described briefly as follows:

- (1) A systematic survey by the class of the field of agriculture goes on continuously throughout the four years of high school. Fifty or more phases of agriculture and country life are thus reviewed to note the local situation with respect to them and the problems and possibilities involved. Approximately half of the class time is required for this survey, which is designed to give vision, to arouse interest, and to indicate possibilities for study and action by the individual boys, by groups of boys, or by the chapter of the Future Farmers of America.

(2) Certain farming enterprises and certain community agricultural organizations and institutions concern every boy in vocational agriculture. These are studied by the class as a whole. Many other agricultural activities are of interest only to groups or to individuals, and are studied by those concerned, mainly in connection with their supervised farming programs, which are individual.

(3) The Future Farmers of America chapter provides a democratic medium for pupil participation in the program of vocational agriculture. It conducts certain activities in which all share. It encourages individuals in their private agricultural enterprises by taking these enterprises into account in awarding F.F.A. degrees, by financing boys who lack funds, and by other means.

A modern program of agricultural education in the high school cannot be conducted without strong classroom teaching, effective farm practice, and active pupil participation in high school agricultural organizations. All three of these phases must be closely integrated, and all boys must participate in all three phases if the best results are to be secured.

Non-Vocational Agriculture

Two levels of non-vocational agriculture can be distinguished. At one level the work is best labeled "Agricultural Arts," for it deals with the rather simple activities in which people generally engage, such as amateur gardening and fruit growing, poultry raising, growing small animals, and appreciating and enjoying the countryside. These phases could be included in courses in general science and biology taught by teachers with agricultural backgrounds. They are adapted to the first two years of high school. At the other level, a course dealing with agricultural economics and rural sociology is needed, if the existing courses in the social studies do not deal adequately with these phases. Such a course should not be taught before the junior year. A semester of work at each of these levels would seem to be about

right for the ordinary high school. Guidance regarding agricultural occupations could be provided in courses at both levels if it is not adequately given elsewhere in the system.

Shifts from vocational to non-vocational classes in agriculture and vice versa would be expected. No one would be assumed at any time to have made a final and irrevocable choice of an occupation. Some fears have been expressed that boys who should take vocational agriculture would content themselves with the briefer and perhaps easier courses in non-vocational agriculture; experience has shown that there are no grounds for these fears.

Some of the units which might be included in non-vocational agriculture are the following: the agricultural program of the school, agriculture in our community and national life, agricultural occupations, sources of agricultural information and assistance, change in agriculture and country life, soil conservation and land use, machinery and power in modern farming, efficient production of crops, efficient production of livestock, crop and livestock improvement, home vegetable growing and fruit raising, home landscaping, distribution and consumption of farm products, agriculture in relation to public health, rural uses of leisure, and farmers' organizations.

It is not suggested that all these units be taught nor that they be taught in the order listed. For suggestions on organizing such a course, the references cited below are suggested.⁶

There are ten states in which non-vocational agriculture has gained a foothold. Iowa and Kansas have the largest number of schools teaching it. In Iowa approximately 500 schools offer such courses each year. On the whole, they have not been very satisfactory because they have not been distinctly non-vocational, but rather semi-vocational; because the teachers have not been

⁶*Course of Study for High Schools (Agriculture)*. Des Moines, Iowa: State Department of Public Instruction, 1940, 154 pp.; Lechner, H. J., "Units in Agriculture for Every High School," *Clearing House*, 11:365-368, February, 1937; Deyoe, G. P., and Ullrich, F. T., *Getting Acquainted with Agriculture*. Danville, Illinois: The Interstate Printing Company, 1941, 736 pp.

specially trained for the work in agriculture; and because the teachers have considered it a more or less undesirable adjunct to their regular work. Whenever teachers with special training equivalent to that of teachers in vocational agriculture have been provided, and the subject has been given a fair chance, the results have been very gratifying. One of the most outstanding examples is at Ottumwa, Iowa, where Paul A. Troeger, an exceptionally well-trained and capable teacher, has served for seventeen years as a teacher of non-vocational agriculture, working full time for twelve months each year in that capacity.

Ottumwa is now a city of 32,000. During the first World War the public schools instituted a gardening program. In the summer of 1921 Mr. Troeger was taken, upon his graduation from Iowa State College, to be the teacher of agriculture. His summers were to be devoted to the supervision of gardening and poultry raising by the children of the city. During the school year he taught classes in non-vocational agriculture. Except for four years, when he served in other systems and did graduate work at Columbia, Chicago, and Leland Stanford, he has occupied this position continuously.

The classes in non-vocational agriculture are well attended. A semester's work in landscaping has been added to supplement the general course of one year. Landscaping activities have been combined each year with gardening, fruit raising, and poultry raising in a varied home-project program for hundreds of Ottumwa children. For a number of years Mr. Troeger served as county poultry club leader and his club members took more prizes on poultry at the Iowa State Fair than all other exhibitors in the 4-H Club classes combined.

During the depression Mr. Troeger was asked to take over 100 acres of land owned by the city to develop gardens for persons on relief. This land was a "jungle" near a river and was occasionally flooded, so that it was undesirable for building purposes, though located near the business district. Hundreds of gardens were planted there, and the jungle became a place of

beauty, proudly listed on the map of the city as "Community Gardens." Extensive canning facilities were provided, and many thousands of quarts of vegetables have been canned each year. Each gardener pays \$3 annual rent. Under wartime urgency, the project has become even more successful.

In 1933, Mr. Troeger was voted Ottumwa's most useful citizen. He is now serving in the Iowa legislature. He is employed the year round at a salary approximating that of the best teachers of vocational agriculture, though the school system has never received a dollar of federal aid for teaching agriculture.

Relationships to Other Subjects

Frequent references have been made to the relationships which exist between agriculture and the other high school subjects. Agriculture is one of the correlating and applying subjects. The close relationship which obtains between agricultural and general education objectives may be explained in part by the scope of the agricultural program. The entire field is covered, but no one operation in the field is studied in detail or for a long period of time. The student does not spend, for example, from three to six months or more in learning how to operate a lathe or a typewriter. Vocational agriculture refers, therefore, to a range of activities as broad as all of farming and allied occupations. Its content is drawn as much from the various sciences as from its own special sources. It can be used to develop interest in all of the subjects of the course of study. There is always some difficulty in determining where agriculture should leave off and another subject should begin. It is, therefore, especially necessary that all teachers of agriculture confer with the other teachers and the principal to determine the special field which his subject should occupy in the particular school system. If this is done, agriculture will vary considerably from one school system to another. It is a good rule for the teacher of agriculture to concern himself with anything the pupils need which is not already provided and which he can, with his special training, offer to

better advantage than can any other teacher in the system. The field of agriculture is so broad that it cannot be encompassed in the courses labeled as agriculture. The teachers in related fields may make contributions to it as valuable as any the teacher of agriculture may make. The more teachers of agriculture work cooperatively with other teachers, the more there will be accomplished. There has been an unwarranted tendency to consider that the natural sciences and the industrial arts are the only subjects related to agriculture. Modern agriculture is quite as much affected by the social sciences as by the natural sciences. The neglect of the social studies as subjects for prospective farmers should receive immediate attention.

Probably no high school pupil should be allowed to complete in agriculture more than one-fourth of the units required for high school graduation. Whether or not he goes to college, every pupil needs a balanced education. There is much evidence to indicate that there is no relationship between the curricular pattern followed by a pupil in high school and his success in college; to be more specific, the evidence indicates that a student capable of going to college is not handicapped because he has had three or four units in agriculture, regardless of the college curriculum in which he enrolls, provided he can gain admission. A few institutions still discriminate against persons who have taken vocational subjects in the high school.

Relationships Between High School and Adult Work

At the present stage of our development, it would be desirable for the teacher of vocational agriculture to give about one-half of his time to work with high school pupils. His potential enrollment above the high school age is typically about ten times his potential enrollment in high school classes in vocational agriculture. As yet, the percentage of the potential adult enrollment actually reached is not as high as the percentage of the potential high school enrollment reached. Less time per person is now given to adult students than is given to high school pupils. The time may come, and perhaps soon, when many more adults will

be reached, and their demands for the teacher's time will be greatly increased. The prospects are that the high school program will become less and less important year by year in comparison with the adult program of the teacher of agriculture.

This demand by adults for more instruction will result in many communities in the employment of more than one teacher of agriculture. Bakersfield, California, already has sixteen teachers of vocational agriculture. Many schools in the western states have four to six teachers. It seems to be easier to keep a community satisfied with the work in agriculture if enough teachers are employed to provide a large part of the farm families in the community with effective service than is the case when one teacher only is employed who has firsthand contacts with only ten to fifteen per cent of the farm families, even though considerably greater costs are involved.

Relationships of Teachers and Principals

Relationships between teachers of agriculture and their administrative superiors seem to be improving steadily. The new teachers of agriculture are being trained much more carefully with respect to their school relationships. Superintendents and their principals are coming to understand better the special conditions needed for effective work in agriculture. There are still too many teachers of agriculture who think that an ideal situation is one in which the principal says, "This is your department. Run it as you please and don't bother me." There are still too many principals who seem to think that the school and the teachers are to be managed to conform to the principal's personal convenience or to his personal preconceptions, instead of exerting themselves to assist their teachers in providing the condition under which their work can be effective.

The teacher of agriculture should have the same status on the teaching staff as any other teacher. He is employed by the local board of education and draws his full salary from that board. A part of his salary may later be returned to the local board by the state board for vocational education, but the local authorities

determine whether they wish the teacher to conduct his work so that state and federal funds may be obtained. He is not a state or federal employee.

Relationships of a teacher of agriculture to his school system are subject to peculiar difficulties, resulting from several causes. His salary is typically higher than the salaries of other teachers; sometimes it is as high as the principal's salary. His relatively high salary results from several factors. His work is federally aided. He works for at least eleven months each year. He has strong community connections, and the community may insist that he be retained even at a salary higher than is paid other teachers. He is eligible for work in other occupations, and he can step out of teaching into an agricultural business or profession if teaching does not offer comparable rewards. Teachers of agriculture are usually scarce, and scarcity leads to higher salaries. The teacher of agriculture remains in the community during the summer when the other teachers are gone. He teaches adults, while most of his colleagues teach only children. He uses the community as a laboratory; hence, he may wish to take his pupils away from the school more often than other teachers take their pupils. His classes are usually smaller than the classes of other teachers. He receives additional pay for teaching evening classes, while other teachers may do much evening work without special compensation. He is visited individually by a state supervisor, and other teachers may gain the impression that he receives his orders from the state office. He belongs to strong and aggressive professional organizations, and frequently he shows a preference for attending the meetings of his own groups rather than general meetings for teachers. Many of these differences will be erased if and when federal aid becomes general for all secondary education.

Although the causes for strain between the agriculture department and the rest of the school system are numerous, they do not prevent excellent relationships from developing in most of our school systems. We have learned through the years how to live together in spite of differences in status and procedures. Out

of a quarter century of experience we can glean a few important rules which, if followed, will remove nearly all the possible friction.

The teacher of agriculture should always recognize the principal of the school as his only superior officer, unless the system employs a superintendent, in which case, of course, the latter would also be a superior. He should confer frequently with the principal, seek his supervision, and present his plans to him for review before starting to execute them. The publicity of the agriculture department should clear through the principal. Perhaps the principal may find it safe and desirable to delegate much of it to the teacher, after the teacher has had an opportunity to show that he understands the general principles to be followed. The teacher should never assume responsibilities which have been delegated to the principal, or which are the principal's by custom and tradition. He should never discuss school affairs with a school board member unless he is requested by the principal to do so. When a state supervisor visits a school, he goes first to the principal and encourages him to spend whatever time he can in the conferences to be held with the teacher of agriculture. The teacher should join enthusiastically in the supervisor's request.

The salary of the teacher of agriculture should not be too far out of line with the salaries of other teachers. To determine a comparable salary, certain computations must be made. Expenses, such as travel, incurred by the teacher of agriculture and not by other teachers, should first be deducted. The net salary should then be computed on a monthly basis and compared with the monthly salaries of other teachers. Some differential must ordinarily be provided to care for the supply and demand factor. When these allowances are made, it is usually found that there is little discrepancy between the salary of the teacher of agriculture and the salaries of other teachers of the same training and experience.

The teacher of agriculture should participate with other teachers in routine activities, such as supervising study halls and

corridors, chaperoning social events, and serving as class adviser or home room teacher. He should not be so loaded with these activities that he must neglect important parts of his program, such as conducting evening schools or supervising farm practice. It is not advisable for a teacher of agriculture to coach athletics.

The teacher of agriculture, like other teachers, must throw his full support behind the teachers of other subjects. A teacher of agriculture may, for example, do much to uphold or to break down the standards which the teacher of English is trying to establish. Though the teacher of agriculture has many community connections which other teachers lack, he should not neglect social relations with the other teachers. He should be conscientious in attending teachers' meetings. He should join other teachers in taking professional courses in which they come to share common interests and to speak a common language. He can invite other teachers to special events in the agriculture department, and he can use talent from other departments in connection with these events. Other teachers should join the teacher of agriculture in providing adult classes. The principal should consider the adult work of the agriculture department as an important part of his program and should participate in it as fully as he can.

While the teacher of agriculture and his classes may legitimately be more frequently absent from school than other teachers and classes, he should recognize that the absence of any teacher or any group of pupils except on time assigned to them seriously disrupts the school system. Whenever possible, trips should be taken on the time of the agriculture class. Visual aids and laboratory work should be substituted for field trips when possible. When there are absences, they should be with the complete approval of the principal. Classes should always return on time from field trips.

The rooms of the department of agriculture may be the most attractive or the most disorderly in the school. The teacher of agriculture should be a good housekeeper and should con-

tribute as much as he can to an attractive and orderly school environment.

The teacher of agriculture needs to become acquainted with the entire student body. He should encourage his boys to become interested in the school as a whole and not merely in the agriculture department. He should not consider himself an attorney for the boys in agriculture in a case against the school system.

How
This!
How
obvious
today!!! → Principals might greatly enhance their relationships with their teachers of agriculture if they would spend more time trying to understand the general nature of vocational education. This would involve taking courses in the subject, attending conferences of vocational teachers, and reading periodicals devoted to vocational education.

Principals may help the work in high school agriculture a great deal if they keep the teachers of agriculture free from high school activities to the extent that the teachers can do justice to their adult work. There is special objection to loading teachers of agriculture with classes in subjects other than agriculture. There is probably no high school with a department of agriculture in a community so small that its teacher of agriculture could not be fully employed in his own field if he were to develop the opportunities he has for adult work. There is some advantage, of course, in having teachers of agriculture teach other subjects, and there should not be an unvarying rule against it; but the persisting tendency has been to have them spend too much of their time with other classes.

In-School vs. Out-of-School Agricultural Education

At times during the past generation it has seemed that the school administrators might be willing to waive entirely any attempts at agricultural education, leaving it to the agricultural extension service and to other agencies. At the present, there is a good deal of interest in retaining it in the schools and in improving it. Not all administrators realize, however, what is involved in retaining for the schools the function of farmer training. It is a tre-

mendous job to train the 160,000 new farmers annually required in the United States and to improve continuously the efficiency of the 6,000,000 farmers already active. If the public schools cannot do the job to the satisfaction of the public, other agencies will take it over. Those of us who are in the public schools are having our chance now; it may be our last chance. If we do not make good in the next few years, we may expect to be denied further opportunity.

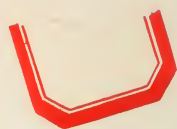
Summary

THESE FOREGOING SUGGESTIONS seem to the writers to offer a way out of a dilemma which has confronted us for twenty years, and toward the solution of which little has been done.

Agriculture has a place in the secondary school. In many of our schools it should receive considerably more attention than it now receives. Federal funds can be honestly used in teaching vocational agriculture to high school boys, though they have not always been so used. Instruction in agriculture in the high school need not be confined to courses for which federal aid is available; if we were to teach only courses for which federal aid is available, few courses would be left in our high schools. Many units may be taught either in agriculture or in some other subject; there should be close correlation of agriculture with the other high school subjects. Dominant pupil interests in agriculture can be conserved and capitalized upon while the school insures each pupil a broad, general education; in fact, these interests may be used to motivate interest in almost every school subject and activity. Farming is not the only agricultural occupation in which high school pupils should become interested. Teachers of vocational agriculture can find plenty of work in their communities without teaching detailed and highly technical courses in agriculture to boys who have no interest in agriculture and no intention to engage in an agricultural occupation. Thorough vocational and educational guidance should precede and accompany specialization in agriculture. The rather disorganized set of courses in vocational agriculture now available can be organized into one of the most closely knit sequences in the high school curriculum. Well taught courses in agriculture, constituting not more than one-fourth of the work completed in the high school, contribute toward and do not detract from successful college work. The emphasis in agricultural education is rapidly being taken away from its high school phases and is being placed upon work with persons past high school age, who greatly outnumber the high school group.†

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