1933

A study of the correspondence courses at Massachusetts State College in the field of agriculture

Donald M. Mason
University of Massachusetts Amherst

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A STUDY OF THE CORRESPONDENCE COURSES AT
MASSACHUSETTS STATE COLLEGE
IN THE FIELD OF AGRICULTURE

MASON - 1933
A Study of the Correspondence Courses at Massachusetts State College in the Field of Agriculture

Donald M. Mason

"Thesis Submitted for Degree of Master of Science"

"Massachusetts State College"
Amherst, Massachusetts
1933
The writer freely acknowledges his debt to those who have so kindly assisted in this study by giving him the courteous and generous assistance which he has received. The writer is indebted to Mr. Earle S. Carpenter for permission to use the records in the Extension Office, without which this study could not have been possible. In particular he wishes to mention Professor Winthrop S. Welles who has followed the study with interest and who has offered valuable criticisms and suggestions. The writer also wishes to express his thanks to Professor William C. Sanctuary and Professor Fred C. Sears for their helpful advice.
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CHAPTER I  INTRODUCTION

Statement of Problem: A Study of correspondence courses at Massachusetts State College in the field of Agriculture.

The primary issues which this study attempts to investigate are:

1. To what extent has a group of people been affected by the correspondence courses given at Massachusetts State College.

2. The general trends of correspondence course enrollments at Massachusetts State College during the years 1926-1930 inclusive and reasons for them.

3. Comparison of conditions at Massachusetts State College with the conditions in all other universities and colleges in the United States offering correspondence courses in Agriculture.

4. Distinction between correspondence courses as offered at Massachusetts State College and other types of correspondence courses offered at other institutions and especially the Massachusetts Department of University Extension.

5. A consideration of the reasons for correspondence study and the justification for the same.

Definition of Terms: By "study" the writer means the act of acquiring by one's own efforts knowledge or information of a particular subject. The term "correspondence" is meant to include the instruction based on printed instruction sheets and the recitation papers written by the student in answer to the questions
or requirements of these sheets. "Courses" refers to the series of lessons arranged in order so as to cover definite fields of subject matter. "Agriculture" is defined as the art or science of cultivating the ground, including harvesting crops and the rearing and the management of livestock. The term "trend" will point out an inclination in a particular direction or course.

Limitations of the Problem: This report is not a complete survey in every respect—far from it. The limitations that time, space and cost necessarily set up render such an ambition impossible. A full account in detail would require visits to every individual influenced by the Massachusetts State College correspondence courses as well as to every university and college in the United States offering such courses, a large expenditure of time and money, and a report of several volumes. Consequently no attempt has been made to include all institutions and individuals, to summarize all statistics, or to describe fully every phase of correspondence courses. At best a mere birds-eye view can be given, but with sufficient clearness and completeness, it is hoped, to warrant worthy conclusions.

Limitations in Collection of Data: The data were collected primarily by the questionnaire method—and the number of individuals cooperating was relatively small. A follow-up card provoked several more replies. The number of individuals taking courses over the period of five years (1925-1930 inclusive) is not too large for a study of this kind. It is believed, however, that the data reported are indicative of the progress and development in this field of service.

Limitations as to Colleges: The United States Department of Agriculture publishes a list of the universities and colleges offering correspondence courses in Agriculture. Of this list of 21 institutions
requested to furnish material, 2 failed to report and 5 reported that these courses had been discontinued, or that no data was available for this study.

The Limitations of the Questionnaire Method: Most of the questionnaires returned had one or more blanks unanswered which means that the consensus of opinion on most questions is weakened considerably. The writer fully realizes the weakness of the questionnaire method. Moreover, he appreciates that the whole survey must be considered in a relative manner rather than in any absolute manner. It can never be expected that any group of people, however homogeneous they might be, could interpret and answer questions in the same light. So, then, when the reader finds himself confronted by any figures, he should realize that they are objective only in so far as they may show approximate trends and scopes of opinions.

While this method of collecting data is open to criticism, it is as yet, the only practical plan of gathering data of this nature. The United States Bureau of Education uses this plan in gathering educational data of various kinds. It is believed that the data presented herein possess a fairly high degree of accuracy so that conclusions can be considered a real worth.

Collection of Data: The data for the present study were obtained through two channels, namely, (1) by a questionnaire sent to those individuals who had taken correspondence courses from the Massachusetts State College during the years 1926-1930 inclusive, and (2) by requesting information from the 20 other universities and colleges in the United States offering correspondence courses in agriculture. Moreover, leading authorities in the field of correspondence study were requested to send additional information.
To secure the list of correspondence students of the Massachusetts State College the records of the Extension Service were used. These records contain not only the name of the student, but also the address, the date of enrollment, the name of the course, the written exercises completed with the grades and the date when the course was finished or discontinued.

Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>Number sent</th>
<th>Number returned</th>
<th>Per cent returned</th>
</tr>
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<tbody>
<tr>
<td>All courses except poultry (completed)</td>
<td>74</td>
<td>33</td>
<td>44.86%</td>
</tr>
<tr>
<td>All poultry courses (completed)</td>
<td>67</td>
<td>24</td>
<td>35.83%</td>
</tr>
<tr>
<td>All courses except poultry (discontinued)</td>
<td>108</td>
<td>20</td>
<td>18.51%</td>
</tr>
<tr>
<td>All poultry courses (discontinued)</td>
<td>145</td>
<td>25</td>
<td>17.24%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>394</strong></td>
<td><strong>102</strong></td>
<td><strong>25.88%</strong></td>
</tr>
</tbody>
</table>

Of the 102 questionnaires returned, only 96 were useable since 6 students lived in the city when the courses were taken and stated that it was impracticable for them to fill out the blank.

The writer would like to explain at this time, his motive for sending out such a comprehensive questionnaire. In order to obtain an adequate picture of the group influenced by the agricultural correspondence courses many facts must be known about the group. So the questionnaire divides itself into primarily four parts to satisfy the writer’s objectives in this phase of the survey. These are namely, first, questions to bring out a broad picture of the average group interested in this type of correspondence study; second, questions to find out some of the practices, outside influences and interests of this group; third, to find out to some degree the influence of the correspondence courses on this group, their effectiveness; and fourth, to get some suggestions to explain the present status of the correspondence courses at the Massachusetts State College.
A small percentage returned the questionnaire and a follow up card was sent about two weeks later. About 60 replies came in as a result of this notice.

A personal letter was sent to the Director of Correspondence Courses in Agriculture at the 20 universities and colleges in the United States where such courses are given. Of this group, two failed to reply while five reported that the courses in agriculture had been dropped and that no information was available for this study. Hearty cooperation was given by the remaining 15 institutions. Personal letters of real interest and value were received from each director of the correspondence department of these institutions.

A copy of the letter sent to each director of correspondence study of other institutions will be found in Appendix A.

The information received from other institutions included the enrollments in agricultural correspondence study courses 1926-1930 inclusive, prices charged for courses, number and kinds of courses offered, occupations of students enrolled, credit given for courses and other material valuable to this study.

Table 2

List of institutions whose replies were useable

University of Arizona, College of Agriculture
University of California, College of Agriculture
University of Florida, College of Agriculture
Georgia State College of Agriculture
University of Idaho, College of Agriculture
Kansas State College of Agriculture and Applied Science
University of Missouri, College of Agriculture
University of Nebraska, College of Agriculture
New York State College of Agriculture
North Dakota Agricultural College
Ohio State University, College of Agriculture
Pennsylvania State College, School of Agriculture
University of Wyoming, College of Agriculture
Louisiana State University, College of Agriculture
Other requests for information have been answered by the following men:

L. R. Alderman, Principal Specialist in Adult Education and Chief of the Service Division (U. S. Department of the Interior, Office of Education).

Dean James E. Russell, Teachers College, Columbia University, New York


Harriet Van Wyck, Secretary, American Association for Adult Education, New York City.


E. Everett Clark, State Supervisor of Adult Education, Massachusetts Department of Education.

W. S. Bittner, Secretary, The National University Extension Association.

J. S. Noffsinger, Director, National Home Study Council.

William F. Stearns, Director, Prospect Union Educational Exchange.

Methodology: As the questionnaires were returned, the information was transferred to a tally sheet or working sheet whereby an elaborate record could be made on all items reported. Then the results were tabulated and worked into charts and graphs for this survey.

Also, the information received from other institutions and authorities was tabulated so that an outline could be made for this study. In order to have an adequate background or foundation for a basis of opinion or judgment, an historical survey was made of correspondence courses in general, University Extension and the Correspondence courses offered by the Massachusetts State College. Moreover it seemed necessary that the existence of correspondence courses should be substantiated with reasons and justifications.

It also seemed necessary that the existence of such courses should be substantiated by a discussion of the methods of presenting such courses.
In searching for material on the historical basis for correspondence instruction, the writer found an interesting article in School Life, discussing correspondence courses for children of isolated government employees now being handled by the Bureau of Education. While this may be a matter of opinion rather than authority, the following quotation does present some facts in a new light.

"Teaching by correspondence is not by any means a recent invention. It is as old as written communication. Cicero's DeOfficiis comprised a series of letters written for the instruction of his son, Marcus. Lord Chesterfield's Letters to His Son gave instruction of another type by the same method. William Cobbett, an Englishman famous as an agitator a hundred years ago, wrote a series of letters to his son, James Paul, which when combined formed a complete grammar of the English language. Published in book form they had a tremendous sale. Charles Toussait and Gustane Langenscheidt were, however, the originators of the correspondence school of the modern type. Their schools of language, established in Berlin in 1357, was for many years extraordinarily successful."

The first organized effort in this country took place in 1373 and was called "The Society for the Extension of University Teaching". However, an elementary basic principle of pedagogy—that of fitting the course to the requirements of the learners—was neglected. University teaching, as applied to miscellaneous groups, was a failure and the University remained an esoteric institution, committed essentially to an aristocracy of scholarship. Noffsinger speaks of the same organization as being called "The Society to encourage Studies at Home". He also gives a more comprehensive account of the Toussaint-Langenscheidt method mentioned above. While the above attempt passed into forgotten history, organized correspondence instruction in America was effectively begun by the Chautauqua Assembly in 1322, under the leadership of no less distinguished persons than the late Dr. William Rainey Harper, then of Yale
University and later President of the University of Chicago, and Dr. Richard T. Ely, then of Johns Hopkins University, later of the University of Wisconsin and Northwestern University. The Chautauqua University was chartered by the Legislature of the State of New York in 1835, and until 1900 a faculty of able men gave instruction by correspondence to about 300 students a year. (34)

The date 1892 marks the beginning of State Extension work at the University of Wisconsin, and from 1906 to 1913 twenty-eight institutions organized such services. (21) According to Alderman, Specialist in Adult Education for the Bureau of Education, there were 101 colleges and universities giving correspondence work in 1928. (2) The National University Extension Association was founded in 1915, and a constitution and by-laws were adopted in which the purpose of the Association is stated to be:

"The establishment of an official and authorized organization through which colleges and universities and individuals engaged in educational extension work may confer for their mutual advantage and for the development and promotion of the best ideas, methods, and standards for the interpretation and dissemination of the accumulated knowledge of the race to all who desire to share its benefits."

Membership in the Association is limited to colleges and universities of known and recognized standing, whose sole aim is educational service. Institutions conducted for financial gain or profit are not eligible for membership.

To bring the matter home, it is well to consider briefly the history of the Massachusetts Division of University Extension. This organization was established by a law in 1915, and began to function with the enrollment of students in January, 1916.

Massachusetts is unique in its system since it is the only State in the Union with its plan of procedure for University Extension. This is,
perhaps, due to the fact that Massachusetts has no State University, and therefore the organization was established under the control of the State Department of Education. Such a system has several advantages. Maphis says:

"Because independent of a purely academic control, university extension in Massachusetts can be more elastic in its offerings and methods of administration and instruction, more free in its choice of supervisory officers and instructors other than members of academic faculties—in short, it can be more readily responsive to the needs of the public." (21)

Massachusetts, with its many universities and colleges can surely lead the way in history for future University Extension development, as it has lead educational movements in the past.

The division offers over 200 different courses in mathematics, English, foreign languages, education, science, government, economics, history, commercial subjects, electrical, mechanical and structural engineering, textiles, drawings, homemaking, and mail service preparation. Both the correspondence and class method of instruction are offered in these courses. There is no prerequisite for enrollment in the courses, except in some courses which would require former training in order for the student to profit by the instruction.

Numerically, enrollment has advanced in almost geometric progression. At the end of the first year the division had only a few more than 3,600 students; to-day the total is well above 100,000 and it is significant of growth that more than a third of that number represent enrollments for the past year alone. (21)

Standards and regulations may properly be placed under the history of extension activities because they represent the gradual crystallization of methods and procedure as the enrollment increased and new institutions undertook the service. Seemingly, the principal aims of the Association
during these early years were to foster a closer relationship and better acquaintance between member institutions, to adopt more uniform practices and methods, and to set up proper ideals and standards. Finally, in 1920, certain regulations and standards were adopted. They are as follows:

1. Character and Content of Courses. The content of an extension-credit course shall be practically equivalent to that of a similar course offered in residence. If, in any case, an extension-credit course is not given in residence, such course shall be approved by the head of the department directly concerned and such other authorities as the rules of the institution provide for, and also such courses shall appear in the proper place in the general announcement, having an appropriate title and number.

2. Conditions of Admission. Students shall be admitted to extension-credit courses provided they satisfy the proper official that they can pursue the course with profit, and providing they can pay the registration fee.

3. Examinations. No student shall be given credit in any extension-credit course unless he satisfies the instructor of his mastery of the course by means of a thorough examination or other suitable test.

4. Extension Instructors. All instructors of extension-credit courses shall be members of the regular university faculty, or shall be appointed as non-resident members of the faculty, their names to appear in the regular faculty list.

5. Credits. Students who pursue an extension course, and who meet all the requirements laid down with reference to assignments and examinations, shall be given the same credit as that given for
a similar course conducted in residence.

The Massachusetts State Teachers Colleges, Teachers College of the City of Boston, and the Department of Education at Tufts College have formulated rules and requirements under which full credit is allowed toward the degree of Bachelor of Science in Education (B.S.E.) for courses given to classes by the Division and satisfactorily completed with a supervised examination by the student. Mount Holyoke College, Smith College, Brown University, and Clark University will allow credit toward degrees for courses conducted by members of the faculties of their respective institutions.

There are no records that show any credit has been allowed individuals at the Massachusetts State College for work done by correspondence from other institutions.

6. Records. In recording extension-credit courses, note shall be made that such credits were earned through extension work, either by correspondence instruction or by direct class instruction.

When extension work was started at Massachusetts State College, there was a big demand throughout the State by persons who could not come to the College for the short courses, for instruction by correspondence. On October 9, 1909, the Director of Short Courses was given permission by the Trustees to offer free lectures and correspondence courses in the state. There were fourteen courses given, namely: (1) Soils and Soil Improvement; (2) Manures and Fertilizers; (3) Field Crops; (4) Farm Dairying; (5) Fruit Growing; (6) Market Gardening; (7) Animal Feeding; (8) Floriculture in four parts; (9) Farm Accounts; (10) Agriculture for Secondary Schools; (11) Agricultural Education; (12) Beekeeping; (13) Forestry; (14) Shade Tree Management.
At this time a course on injurious insects was being prepared and the demand for a course in poultry management was so strong that such a course was being organized.

The lessons were neostyled and sent, one lesson at a time. Books supplemented the lessons which were furnished at list price when required. A uniform charge of $1.00 was made for each course. The total registration was 476 for the two years 1909-1911. The courses were corrected by the faculty members of the departments which had courses offered in their respective fields.

Between December 1, 1912, and November 30, 1914, many of the extension correspondence courses were revised, some were re-written, and a few new ones were published. Also, a new system of handling the papers sent in by the students for correction was inaugurated during these years. Formerly the students lost much time waiting the return of corrected papers and the new lessons to which were sent with them. The new plan was to send the first two lessons to a student registering in a course and to send the third lesson immediately upon receipt of the answers to the first lesson, and in this way keeping two lessons ahead throughout the course. Three methods were used in the work: the simple textbook method, the prepared lecture method, and a combination of the two. The later method was found to be the most effective and plans were made to establish this method in connection with each course as it was rewritten or revised.

During the latter part of June, 1914, the supervisor of correspondence courses made a trip to several institutions for investigational purposes. Among the most valuable suggestions and helps received were the following: a preliminary lesson for all courses on "Methods of Study";
a follow-up system for delinquents; systems of record keeping and card indexing. It was planned to test out these suggestions and put into practice such of them as were found applicable to work in Massachusetts.

Lecture courses were arranged and presented in 1914 in eight different cities and towns. One of the most significant of these courses was the one given under the auspices of the Boston school authorities. This was for the purpose of preparing prospective leaders for garden work. Seventy-five teachers were enrolled who were to become leaders in a systematic plan to introduce garden work into the schools of the city in the spring.

Six courses were conducted in cooperation with the Boston Chamber of Commerce. Each course consisted of five lectures a week during the fall. The average attendance was over two hundred. Among the courses offered were soil fertility, field crops, fruit growing, flower growing, vegetable growing, and poultry husbandry.

In 1915, there was one noticeable change in the correspondence project. This was the group study idea which was adopted in several places with promises of success.

Lecture courses were given in series whenever possible. One such course of 45 lectures was given under the auspices of the Boston Chamber of Commerce with more than 900 people completing the work.

In 1916, correspondence courses were conducted as in the previous year. Wherever possible, practical or laboratory work was emphasized and conducted. The work was available to anyone between October and June. Special arrangements could be made if a person was so situated as to have a considerable amount of time to devote to the work during the summer months. Group study classes were encouraged as it was felt there
was an advantage in this method. The enrollment was close to 500 all the year. Essential needs for the next year were funds to be devoted to the preparation of new courses; additional help in correcting papers; more clerical help, a larger apportionment for supplies and maintenance.

In 1917, the correspondence courses were conducted in similar fashion, with an enrollment of about 650. Members of the college faculty met study groups to deliver lectures and answer questions concerning the problems which the members of the class might have noted. The college library, through the cooperation of local libraries, loaned a number of text-books and reference books to these study groups.

In October 1913, the name of the courses was changed from Correspondence Courses to Home Study Courses. Permission was asked for all the New England states to offer the courses to their residents. Maine did not take advantage of this offer. A fee of $2.00 was fixed for each course and those who had not completed courses the previous June could do so by paying a renewal fee of $1.00. The enrollment for the year was 176 at $1.00, 23 renewals, and 93 at $2.00.

Reorganization on the keynote of "personal service" was undertaken, regarding the individual as the unit and not the work as a whole. Better materials were used in preparing the courses so that they presented a much more attractive appearance than in former years. For the first time, members of the faculty were paid for the courses which they wrote or revised. This was found to be a very satisfactory method of arousing their interest and of obtaining the work more promptly.

A new follow-up system was devised, consisting of two files, one for instructors and the other for students. By a method of card indexing it was easily determined when a student spent more than a month in answering a lesson or the instructor took more than a week to correct it. When either
of these two delays occurred, a mimeographed form letter was sent to the student, inquiring as to the reason for the delay or the instructor was requested to return the corrected lesson immediately. Again, the most essential need was for funds to support the work.

In 1919, the enrollment was nearly 400 which could have been larger if adequate finances had been available.

In 1920, the projects of the subject matter specialists were followed in outlining new courses. It was the aim in each new course to state briefly the condition of the industry and the opportunities for its development in Massachusetts, then to indicate the problems involved and to outline a course of study based upon textbook reading and supplemented in each lesson assignment with an article by a specialist, that would show the application of the text to Massachusetts agriculture. The enrollment for the year was about 500.

Under the auspices of the correspondence department, two intensive courses were given in Springfield; one on vegetable gardening to a group of about 100 members of the Springfield Garden Club and the other on planning the home grounds to a landscape gardening club of about 60 members. A series of lectures on Flower Gardens, supplemented by home study, was given by Professor Clark Thayer to the Southampton Home Economics Club.

In 1921, publicity was given to the courses with the result that 319 new students were enrolled. Many inquiries were received so that it looked as if more people would benefit from these courses than in previous years. Textbooks could be obtained from the college book store by those who could not obtain them in their home town. The best bulletins available were used as additional references with the lessons. In this way, the courses were made more interesting to those who might take them. Some were used in conjunction with the work of subject matter specialists with good results.
In 1922, results were rather unsatisfactory. Only 12% of the students completed work within the year, the enrollment being about 300. Because of this, definite revision of the subject matter and the manner of conduct of the courses was undertaken. This was done through the initiative of Richard Mellen who was in charge of correspondence courses during these years. A uniform plan of organization of subject matter to make a definite teaching attack upon each lesson, with reviews and checks, was prepared by Professor W. S. Welles of the Department of Agricultural Education (at that time) at Mr. Mellen's request. The courses were rewritten so that they might be received in anticipation of seasonal operations throughout the year. The fee was increased from $2.00 to $5.00 the first of September and requirements for the purchase of textbooks were increased. Results began to show during the last three months of the year and it was hoped the courses would reach their former standards in 1923.

In that year the course in poultry raising was revised, after which it consisted of 57 lessons, the first 52 of which were mailed weekly and conformed to the seasonal operations on the farm. The last five lessons referred to the organization of a poultry plant. This course was very popular with the students. Enrollment increased during the year. The revision of all courses which was first planned in 1922 was further carried on in 1923, a definite outline being followed.

In 1924, revision of the courses was still going on. This had proved to be a slow process, first because no person was available to direct the revision, and second because it was difficult to obtain as much of the professors' time as was desired to devote to this work. A new course was added, the Marketing of Farm Products, which was never completed.

The basis of fees for the courses was rather unsatisfactory at that time as a course of eight lessons cost as much as one of fifty-two lessons. This
obviously was not an equitable arrangement. The enrollment for the year reached 150.

In January 1925, the trustees agreed that the fees charged for the courses were not on an equal basis. Accordingly, they approved the following:

<table>
<thead>
<tr>
<th>Minimum charge (less than ten lessons)</th>
<th>$2.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 15 lessons</td>
<td>3.00</td>
</tr>
<tr>
<td>16 - 20 lessons</td>
<td>4.00</td>
</tr>
<tr>
<td>21 - 25 lessons</td>
<td>5.00</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
</tr>
</tbody>
</table>

The fee for courses where all the material was included in the lessons was one and one-half times the standard fee. In the case of a reading course the rate was one-half the standard one.

During the year the attitude of the supervisory offices in the State House prevented further development of the correspondence courses. Two general announcements were published during the year. Other than that no efforts were made to secure enrollments, yet about 150 were studying the course.

However, arrangements were made for the conduct of two radio-correspondence courses in poultry through W.B.Z. Each lesson in the series had a lecture broadcast from Springfield to supplement a study assignment, which together with a guide to the study, bulletin material, and questions were sent to those who enrolled. It was estimated that over 1,000 took the first course and the percentage of completions was extremely high as compared with the ordinary correspondence courses. Perhaps this was true because those who enrolled did so because of a real desire to take the work. There was no charge in connection with the course broadcast during January and February, but those desiring the lesson material in connection with the course broadcast in May and June had to pay $1.00, about 200 enrolled.
In 1926 these courses offered were: Farm Management, Soils and Soil Improvement, Field Crops, Feeding Farm Animals, Producing and Handling Market Milk, Poultry Husbandry (6 courses), Forestry, Beekeeping, Apple Growing, Peach Growing, Grape Growing, Strawberry Growing, Home Flower Gardening, Commercial Floriculture, Home Vegetable Gardening, Home Food Preservation, and Marketing of Farm Products. The poultry course was revised and several of the other courses needed to be. No advertising was done, but the enrollment reached 165. In connection with the radio broadcasting four radio correspondence courses of eight lessons each were given from W.T.A.C., Worcester. Each lesson was broadcast weekly and questions concerning each lesson were sent from the Amherst office to those who enrolled by paying $1.00. During 1927 the correspondence courses underwent rather radical changes. The great improvement in the agricultural plan the last few years, the development of radio, and the large addition to bulletins and circulars seemed to fill the demand for some of the correspondence courses which had sufficient demand to warrant the time of those who prepared the course. Charges were increased, raising the average cost of the courses from 20 cents to 35 cents a lesson. As a result of elimination of those courses which it did not seem justifiable to continue, the number was cut from 26 to 11. Those courses continued were: Farm Management, Soils and Soil Improvement, Poultry Husbandry (6 courses), Apple Growing, Home Flower Gardening and Commercial Floriculture. At the first of the year 77 were receiving courses and 120 new enrollments were received while an almost equal number of people discontinued the courses. Thirty-five per cent of these completed their courses and received certificates.

Three or four of the courses were in the process of revision and a new catalogue was issued. No advertising was done during the year, but in
spite of the increased charges, the enrollment remained good as shown by the above figures.

In June, 1926, the Extension Editor and Supervisor of Correspondence Courses resigned and when the vacancy was filled the new person was Extension Editor; therefore the work in connection with the correspondence courses became part of the work of the Supervisor of Exhibits and Extension Courses. This organization has continued to the present time.

Since 1926, however, little or no advertising has been carried on except through the county agents, extension meetings and a suggestion of the offerings at Massachusetts State College in the Massachusetts Department of University Extension pamphlets. The enrollments have declined a good deal each year so that at present the correspondence work appears very weak and rather questionable.

The writer will attempt to show in the next few chapters the present conditions and trends of agricultural correspondence courses at Massachusetts State College as well as conditions and trends at other institutions throughout the country. He will also try to analyze the situation from every angle so that any conclusions will be well founded and justified.
CHAPTER III

OPPORTUNITIES OF CORRESPONDENCE STUDY

No longer is it necessary for a person to say, "I would like to study more in certain fields but I can afford neither time nor money necessary to go to school." No longer need parents say to a child, "We cannot spare you the four years needed to complete a college education." This is an age when the old idea of a college being a "center of teaching" has given way to the idea of the college as a "center of learning" (25). Bureau of Education report for 1927-28 reveals that there were 1076 universities and colleges in the United States at that time, having an enrollment of 919,381 students. In addition to this number there were 297,451 students in extension. During that period there was one student in an extension class for every four students in residence, and one student doing correspondence work for every five in residence. This is an increase in extension enrollment of 300 per cent since 1921. (32)

There are many other sources from which similar figures can be given. Price states that there are five times as many adults pursuing some form of educational study as are registered as candidates for degrees in all of our colleges and universities. (30) This statement takes no account of agricultural institutes, museums, chautauquas, lycems, library reading courses, or instruction through film, radio, newspapers and magazines. Columbia, Chicago, California, Wisconsin and other universities have had articles during the past few years giving figures on their enrollments. Massachusetts State College data will be given later in this study.

The United States Government itself has engaged in correspondence instruction. (11) The problem of educating reserve officers in the Army has been met by providing theoretical instruction by correspondence.
According to Danielson, the plan was adopted with some doubt as to its possible merits, but has proved quite successful. He states that, "Army correspondence work is the most complete and searching equivalent in the instruction of reserve officers that the War Department has been able to devise as a substitute for the work of the army schools." So many units of work must be taken by correspondence and a certain length of time must be spent on practice work in summer training camps for a reserve officer to be eligible for promotion.

Extension teaching at Massachusetts State College is divided into three Bureaus: Correspondence Study, Extension classes and Short Courses. At this time we are primarily interested in the Correspondence courses as offered by the Massachusetts State College in the field of Agriculture. However, throughout this thesis comparisons will be made with institutions which offer extension teaching for credit, and it is well, at this time, to define extension so there may be no confusion between it and the work done by numerous commercial correspondence schools.

To quote Maphis:

"University extension is the organized and systematic effort to bring some of the advantages for culture and instruction within the university to people who are not enrolled as resident students, and thus to make the campus of the university as wide as the State itself. It renders the resources of the university's faculty, libraries, laboratories and shops available to the largest possible number of individuals and communities, by carrying them out into the state and applying them in creative helpfulness. A university should not only discover truth, but disseminate truth; and university extension, therefore, is an attempt to bring the university to those who cannot go to it." (21)

Massachusetts State College does not offer University extension courses by correspondence. It does, however, offer extension service correspondence courses in Agriculture which, in themselves, carry out the whole plan of university extension. The distinction between these two will be made more fully in the next chapter.
University extension is supported by appropriation in State schools and is subject to all of the University's standards and requirements. As Price says, "The objectives of University extension are the same as higher education itself." (30) It is higher education brought to a more mature group than resident students at somewhat irregular and unconventional times and places.

Commercial correspondence schools are operated for profit, with a diversity of standards and little in the way of prerequisites, or what might be called entrance requirements.

"In 1896 few people, save a limited number of theoretical experts, knew anything about electricity. Nor had anyone at that time ever heard the work "garage" because there was no such thing. Now we have thousands of them and men to operate them (who have no qualms about dirty hands and broken finger nails) who know more about electricity than anybody did thirty years ago except professors of science. They learned this through correspondence, night and vocational schools." (13) "The factory, printing establishment, cotton or wool mills, tool shops, etc., need skilled men to operate them."

It is actually within the last ten years that the American business world has sharply felt the need of training its workers; and like magic organized correspondence schools of commerce and administration have sprung up, good, bad and indifferent. Seventy million dollars a year are paid out by wage-earners in America who wish to increase their earning capacity or broaden their education. (13) Correspondence schools enroll about two million students per year at an average cost of $35.00 per course. (5) A study of the situation will reveal that, financially, neither night schools nor vocational schools can be compared with these institutions in importance and usefulness.

Correspondence study is fundamental to the whole extension movement as a teaching agency. Groups may be reached in fair sized towns and communities by other extension activities such as classes, lectures, lyceums, institutes and visual instruction, but the individual who wants some
particular subject, or who is in an isolated district, has no means of study except through correspondence or in residence. The value of the method is, therefore, one of vital concern. As Henmon points out, "There is at present a limited amount of rather unsatisfactory evidence which goes to show the adequacy of the correspondence method". (15) On the other hand, the opinion still prevails among many in academic circles that correspondence instruction is, at best, an unsatisfactory substitute for residence instruction. Credit regulations vary widely in different institutions, so that some will not accept correspondence work at all while others will allow up to seventy-five per cent.

Replies received from an inquiry sent to all of the universities and colleges in the United States offering Agricultural courses by correspondence present a fair picture of the credit regulations. Of the thirteen replies received, only four institutions give courses without credit. All of the others allow between 25 and 50 per cent of college work to be done by correspondence work. Nearly all of the universities and colleges offer reading courses for which there are certificates earned by the individuals taking these courses. An extract from Professor W. S. Bittner's letter to the writer sums up the matter very well. He says, "The distinction between credit and non-credit correspondence courses cannot be made clear-cut for the simple reason that credit depends not directly on the nature of the course but on its designation, the status of the student and the acceptance policy of institution. In the middle west most of the courses offered by standard institutions are credit courses in every respect, but they are pursued by non-credit students as well as credit students. A few courses, however, are designated only for adults who do not desire credit."

The universities and colleges offering correspondence courses in agriculture will be found in the following table, with the number of courses
offered in agriculture, status as to credit or certificate, and the amount of credit accepted through correspondence toward a college degree.

It must be remembered that the following table is not indicative of the only courses offered for college credit. In all cases, agricultural offerings are small compared with the whole field of correspondence study offered for college credit.

Table 3

<table>
<thead>
<tr>
<th>College</th>
<th>No. of Courses in Agriculture</th>
<th>Credit</th>
<th>Amount of Credit toward degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Univ. of Arizona</td>
<td>6</td>
<td>Certificate</td>
<td></td>
</tr>
<tr>
<td>Univ. of California</td>
<td>42</td>
<td>Certificate</td>
<td>40%</td>
</tr>
<tr>
<td>Univ. of Florida</td>
<td>12</td>
<td>Credit</td>
<td>30%</td>
</tr>
<tr>
<td>Georgia State</td>
<td>13</td>
<td>Credit</td>
<td>25%</td>
</tr>
<tr>
<td>Univ. of Idaho</td>
<td>10</td>
<td>Credit</td>
<td>25%</td>
</tr>
<tr>
<td>Kansas State</td>
<td>12</td>
<td>Credit</td>
<td>25%</td>
</tr>
<tr>
<td>Mass. State College</td>
<td>11</td>
<td>Certificate</td>
<td>30%</td>
</tr>
<tr>
<td>Univ. of Missouri</td>
<td>12</td>
<td>Credit</td>
<td>30%</td>
</tr>
<tr>
<td>Univ. of Nebraska</td>
<td>6</td>
<td>Credit</td>
<td>50%</td>
</tr>
<tr>
<td>N. Y. State College</td>
<td>31</td>
<td>Certificate</td>
<td>25%</td>
</tr>
<tr>
<td>Ohio State</td>
<td>24</td>
<td>Credit</td>
<td>33%</td>
</tr>
<tr>
<td>N. Dakota Agric. College</td>
<td>25</td>
<td>Credit</td>
<td>33%</td>
</tr>
<tr>
<td>Penn. State</td>
<td>42</td>
<td>Certificate</td>
<td>25%</td>
</tr>
<tr>
<td>Univ. of Wyoming</td>
<td>3</td>
<td>Credit</td>
<td>25%</td>
</tr>
</tbody>
</table>

During the last decade about two hundred colleges, technical schools, normal schools and universities have offered instruction by mail. At present about one hundred and fifty such schools have a regular program in operation. (1) Only twenty-six land grant colleges conduct correspondence instruction. (2) These offer a scattering of courses in agriculture, arts and sciences, commerce and business, education, engineering, home economics, and a few other subject matter fields. Thirty-six of the forty-two members of the National University Extension Association offer courses, and thirty-one of these give academic degree credit for work done by correspondence.

The courses of the Massachusetts Division (the only system of its kind in the United States) may under certain conditions be accepted by some
institutions for college credit, though their courses are generally not applied to meet degree requirements.

The Massachusetts division is committed primarily to short courses. Its courses vary from 5 to 20 assignments in length, the number of assignments in a course depending not upon an artificial standard as to length, but upon the amount of time and space needed for the effective teaching of the subject. It has been found easy to introduce the short-unit course for two reasons: First, because the division has no traditions nor prejudices as to the amount of a subject that should be included in an extension course; second, because adult students in Massachusetts ordinarily choose courses for the work's sake and not for the sake of degrees, academic credit, and the like.

Testing techniques have developed to the point where definite experimental evidence should be secured. Systematic study of the technique of instruction, of the content of courses, and of the results achieved is a field almost untouched by scientific students of education.

The principal questions which arise in regard to correspondence study have to do with its advisability or justification, its methods and standards, and its worth. All of these questions have two sides, the subjective representing the opinions of both educators and students, and the objective consisting of concrete data. (The justification of correspondence study will be given a minor role and since methods and standards are fairly well set up, the primary question resolves itself into this: "What is correspondence study worth in the field of Agriculture as given by Massachusetts State College?"
CHAPTER IV

REASONS FOR CORRESPONDENCE INSTRUCTION

Into the new German universities, organized after the Napoleonic upheaval by Von Homboldt, the imperial minister of education, was bred the idea of research. (20) This new ideal spread to all modern universities so that the two functions of universities came to be recognized as teaching and research. But the discovery and accumulation of knowledge soon outran its dissemination and assimilation. There came a demand for a more democratic share in the enjoyment of the new learning and while not in Imperial Germany, efforts were inaugurated in democratic England and elsewhere for the extension of university teaching. It was from England that the term "extension" spread to the United States and we have the organization of the Society for the Extension of University teaching.

All of the sources studied concur in the idea that university extension began not as a spontaneous movement from within the universities themselves, but in response to popular demand. That the demand is a fact and not an opinion is shown by the remarkable growth throughout all of the institutions promoting University extension courses. Concurrently with this demand has spread a broader philosophy of education to take in "all the people". As Moulton says, "University extension has a distinct place in the history of education. It is the gradual evolution of the full concept of what a university is." (34) And as we approach the three-fold function of a state university, as set forth by former President Van Hise of Wisconsin in 1903; that of teaching, research and extension. (20) He declared that the responsibility for the dissemination of accumulated knowledge is assimilable form for all the people is an equal function of the modern university with that of resident teaching and research.
It is obvious that the real reason for extension teaching is adult education. Thomas Jefferson declared with fervor that "no other foundation can be devised for the preservation of Freedom and happiness than the diffusion of knowledge among the people. If a people expects to be ignorant and free in a state of civilization, it expects what never was and never will be. Preach a crusade against ignorance." (21) And with the statistics quoted by Moyer showing that one out of a hundred people only attend college, the primary purpose is to offer such knowledge to this group. (25) Maohis gives a higher figure and holds that about two per cent go to college, but even this, he says, does not refute the charge that we are training a sixth-grade citizenship. (21)

With the eight-hour day a present fact and the four day week seriously being considered as a future possibility, the question of leisure time becomes one of more importance. There does now, and will to a greater extent in the future, exist in every community a considerable class of persons who have capacity, leisure and ambition for further study. They have a claim upon the state for educational opportunities other than the formal instruction given within the walls of institutions. (25) Earning courses should be supplemented by "recreation" courses. Education should enable a man to enjoy himself in inexpensive ways, to spend hours so as to be truly recreated for working hours. One mark of an educated man is that he does not have to depend upon artificial and sensational forms of amusement. This service will undoubtedly be rendered more by other fields—lectures, lyceums, visual instruction and library service—but correspondence study will also have a part.

Such is the justification, in a small way, perhaps, for the existence of the University Extension as it is viewed in general for the benefit of culture and intellectual enlightenment through the correspondence world.
But now for the farmer and the group which the correspondence courses of Massachusetts State College affect - will there be more leisure time for them as it may be in the business and professional worlds? Rather doubtful, to be sure. The farmer's interest is in the future and his aim will be practical enlightenment and in scientific farming. Such must come as a result of study and investigation but only in so far as he can learn by reading.

A consideration of the average farmer's leisure time and how he spends it will present some interesting information. The following table summarizes the facts obtained from the writer's questionnaire on this matter.

Table 4

<table>
<thead>
<tr>
<th>Hours Leisure Time per Week</th>
<th>Number reporting</th>
<th>Average leisure time for the group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63</td>
<td>13.07 hours per week</td>
</tr>
</tbody>
</table>

or 2.59 hours per day

Table 5

<table>
<thead>
<tr>
<th>Amount of leisure time</th>
<th>No. Reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>8</td>
<td>12.53%</td>
</tr>
<tr>
<td>1-5 hours</td>
<td>5</td>
<td>7.9%</td>
</tr>
<tr>
<td>6-10 hours</td>
<td>6</td>
<td>9.2%</td>
</tr>
<tr>
<td>11-15 hours</td>
<td>13</td>
<td>20.63%</td>
</tr>
<tr>
<td>16-20 hours</td>
<td>11</td>
<td>17.61%</td>
</tr>
<tr>
<td>21-25 hours</td>
<td>5</td>
<td>7.9%</td>
</tr>
<tr>
<td>26-35 hours</td>
<td>5</td>
<td>7.9%</td>
</tr>
<tr>
<td>36 and over hours</td>
<td>10</td>
<td>15.8%</td>
</tr>
</tbody>
</table>

As shown in the above table, 63% of the group have less than 20 hours leisure time per week which means that too much time is not available for "cultural and intellectual enlightenment" to say nothing of the time that would be spent in following lines of interest that would promote financial gain. The farmer likes to "keep abreast of the times" but he cannot spend
much time in doing so. It is at this point that extension bulletins, magazines, play an important part—for the average farmer spends a good part of his leisure time in reading, as will be shown in the following table.

Table 6

How do you spend your leisure time?

<table>
<thead>
<tr>
<th>Number Reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number reporting</td>
<td>63</td>
</tr>
<tr>
<td>Reading</td>
<td>40</td>
</tr>
<tr>
<td>Working (odd jobs)</td>
<td>12</td>
</tr>
<tr>
<td>Recreation</td>
<td>10</td>
</tr>
<tr>
<td>Radio</td>
<td>4</td>
</tr>
<tr>
<td>Studying</td>
<td>3</td>
</tr>
<tr>
<td>Resting</td>
<td>2</td>
</tr>
</tbody>
</table>

The writer is firmly convinced that the farmers, as a group, are not so much interested in cultural improvement as they are in practical enlightenment on their own farm problems. The reading material of correspondence courses in agriculture substantiate the reasons for correspondence study, but the writing of assignments puts a weakness into the system from the farmers' point of view.

Some other thoughts should be added to what was said at the beginning of this chapter about our American citizenship. It is the urgent need of every American, whether he be leader or follower, to receive from centers of learning that information which men of learning have weighed, sifted and classified, and adapted for use in practical, every-day living. The strength of a university education should not be permitted to remain a possession of the few who are fortunate enough to dwell for a time in a center of learning. To meet the ever increasing demands of modern life, in the opinion of former President Birge of the University of Wisconsin (1924), "the social mind must be kept in a state of fluidity".
Figure 1.

Distribution According to how Massachusetts State College Correspondence Students Spend Their Leisure Time.

- Reading: 52.32%
- Working at odd jobs: 17.64%
- Recreation: 14.74%
- Radio: 5.23%
- Study: 4.12%
- Rest: 2.92%
In other words, people must study and read for themselves, must constantly acquire new ideas, and must constantly revise their ideals, if social life in a rapidly changing democracy is to go forward. (31)

The question arises as to why the universities should be concerned with this problem of adult education. If there are so many mature people thus needing and desiring to learn, why cannot they do so independently? (27)

It can truthfully be said that there are many other agencies, newspapers, magazines, churches and clubs, which can disseminate knowledge. But the point is, if there is any such thing as educational leadership and if there is any value to a college education as such, why should not such leadership lead and such education be sought? If for no other reason than that the information shall be correct, colleges and universities must take the lead. Alderman cites an all too common illustration of misinformation:

".....the writer, a short time ago, was in a city which is the home of a well-known educational institution. He was invited by a friend, a business man, to attend a lecture on applied psychology, by an itinerant lecturer. The lecture hall was filled with business men and women each of whom had paid $40.00 for a series of lectures running through four weeks. The lecture was full of platitudes and promises.....

There were in the local institution mentioned two nationally known psychologists either of whom not only knew much more psychology but was a more entertaining speaker than the itinerant, self-advertised lecturer..... The pity of the situation is, not that their money was wasted, but that each person who took the course of pseudo-lectures thinks that he knows much about the subject when, as a matter of fact, he has received misinformation and misdirection which will merely increase the difficulty of any later attempt on this subject." (2)

A consideration of the reasons for taking correspondence courses would be worthwhile at this point. Mr. B. W. Ames of the University of Florida made a survey to determine this through the correspondence students at Florida University. (1) The following table will show the results of his study.
Table 7

Reasons for Taking Correspondence Study
(Florida University)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit toward degree</td>
<td>62.5</td>
</tr>
<tr>
<td>Advancement</td>
<td>25.</td>
</tr>
<tr>
<td>Credit toward high school graduation or to satisfy entrance requirements</td>
<td>13.</td>
</tr>
<tr>
<td>Extension of certificate</td>
<td>10.</td>
</tr>
<tr>
<td>Culture</td>
<td>5.</td>
</tr>
</tbody>
</table>

The above percentages total more than 100 because many students signified two reasons.

The majority of the enrollments are in college work at Florida University and adding high school courses, the credit work is over ten times as popular as the non-credit work. Not every person taking college work wants college credit, however. Mr. Ames says, "The common people over the state, to distinguish them from regular faculty and students, realize that a college education with all its faults, is worth something." (2)

Such a survey presents fairly a picture of the situation of a typical University Extension Division and the reasons for its presence from the standpoint of the students themselves.

To bring the matter home, it can be readily seen how the scene will change to one of a practical outlook with different objectives in view. The following table shows the results obtained from the writer's questionnaire on this matter.

Table 8

Reasons for Taking Correspondence Courses
(Massachusetts State College)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>No. Reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of reports received</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>Keep abreast of the times</td>
<td>55</td>
<td>61.11</td>
</tr>
<tr>
<td>Keep up habits of study</td>
<td>41</td>
<td>45.55</td>
</tr>
<tr>
<td>Hobby</td>
<td>35</td>
<td>37.77</td>
</tr>
</tbody>
</table>
This study was made from the records of 1,200 correspondence students by the extension department of the Massachusetts Board of Education. It is typical of any University Extension organization.
The percentages equal over 100 per cent because nearly half of the individuals reported two reasons for taking the courses. Other reasons reported were "to gain a better position", "information", "to improve methods" and "to get away from industry". The writer is firmly convinced that the majority of correspondence students at Massachusetts State College are interested in gaining information that will help them in a material way toward self promotion. The use of "hobby" as a reason seems to have been used much too liberally since other questions reported contradict this reason for taking the course. For example, very few farmers would take a course for a hobby when he has but 2 or 3 hours leisure each day. Moreover, when the number in commercial farming outnumbers the average small scale farmer nearly 3 to 1, not a very high percentage will be taking the courses for a "hobby" or for any cultural benefit to be derived from the courses. The most important fact to notice at this time is that the majority of correspondence students are after information for their own good either as a hobby or for their own future well-being. So, then, the average student in correspondence work at Massachusetts State College is receiving more culture, since he desires information, rather than the checking off of necessary courses (which is a formality in our educational system of to-day) than the average student working for credit in the University Extension courses of other institutions.

Some further reasons for correspondence study can be found in the various University Extension pamphlets received by the writer. A few of the outstanding ones are:

1. Correspondence study makes it possible for people to carry on effective study under individual instruction while living at home or carrying on the work of their regular vocations or professions. While such instruction lacks some of the
advantages of resident study, it has compensating advantages because of its personal and individual methods. (35)

2. These courses have the advantage over class work of requiring the student to work through the material in all of its phases and details. This advantage has been well proven by the mastery of the subject and ease with which students have met their examinations and by the strength shown as they have continued their work in classes. (17)

3. The student of correspondence courses is in a position to apply immediately the knowledge or information which he gains, without waiting a year or more, as a resident student must often do, before putting his knowledge into practice. (29) Such as a special advantage to farmers, who can study, without leaving home, almost any branch of farming and they can practice on the farms the principles which they are taught.

4. Students are not pushed along or held back by classes.

5. All courses are elective, and an effort is made to adopt the courses to the needs of the individual student.

6. Correspondence courses may be started at any time.

7. They wait when one is busy. They are instantly ready when one has time. In fact, they are "made to order" for the busy person. (10)

8. Dr. W. S. Bittner says:

"The students that profit more from individual work than they do from classroom instruction are of several kinds. Some find the embarrassment incident to classroom conditions a stumbling block, and the personal anonymity in correspondence a release. There are also students who work best alone. How large numerically these types are there is no exact way of telling, but to the instructor they are evident in case after case." (5)
Correspondence courses in agriculture are meant to give the farmer a chance at spare-time study when he may receive from books and from lessons prepared and marked by teachers at the College, new knowledge which will help him to earn more money and to get greater satisfaction from his job.

As Noffsinger says about commercial correspondence schools:

"No matter how alluring the advertising and resourceful the salesmanship, the correspondence school could not get 1,500,000 new students every year unless some demand for such instruction existed." (28)

The reasons, then, for correspondence study are many and such a method of adult education, as has been shown, effects a very large group of people. However, further consideration of correspondence study and its justification is advisable. The next chapter will be given to this matter.
CHAPTER V

JUSTIFICATION FOR CORRESPONDENCE STUDY

Granted that there is a need for correspondence instruction as brought out in the previous chapter, it would not be difficult for some opponent to show that there are plenty of things in this world which may in a sense be needed, but which we are not justified in getting. (Correspondence work must be justified from a financial point of view; from the view of the College administration—and from the view of the students served.)

In dealing with the first topic, it is not the purpose of this study to go into the matter of finances as far as any college appropriation and correspondence study appropriation are concerned. The amount received by any General Extension Division is but a fraction of the whole, yet the number of students served by Correspondence Study is very large. This bears out Lightly's statement that, "Correspondence Instruction calls for an investment in men rather than in materials—in personality rather than brick and mortar." (20)

Lest there be any misunderstanding, the writer wishes to say here that this study is not going to set forth any such absurd statement as, "Since correspondence work can be done for less money, why not do away with residence classes and teach by correspondence study only?"

The cost to the student for correspondence work is not high. While it is true that fees charged have been so low as not to cover the expense to the institution carrying on the work, one of the chief reasons for imposing them has been the necessity of supplementing available funds. In this way the number of students has been increased.

The correspondence enrollment of the University of Chicago is 50,000;
in New York State Agricultural College it is 25,000; in the University of Minnesota it is 3,259; in the University of California it is 10,000; in the Massachusetts Department of Education, entirely supported by State funds, it is more than 30,000. (10) Federal encouragement of the general work similar to that given agricultural extension would undoubtedly enable the general extension division to give to other classes a service which would bring as great transformation to their lives as agricultural extension has brought to the farmer.

A common method of procedure is to reckon the fee for a course upon the basis of so much per lesson or per credit granted. This varies from $2.00 to $15.00 a credit and from 37 cents to 50 cents per lesson in State-supported institutions. Some charge a flat rate and permit the student to carry as much work as he can do in addition to the course fee, an enrollment fee, varying in amount from $1.00 to $5.00 is charged.

Only one college and one university in the United States offer free courses in Agriculture. These are, namely, Pennsylvania State College with a yearly enrollment of about 22,500, and Cornell University with approximately 15,000 enrolling each year. These institutions do not give credit, but both present certificates to those who complete their courses. Of the sixteen institutions offering information, two of them distinguished between residents and non-residents and charged $2.00 and $5.00 extra for each course taken by a non-resident. The Cornell Farm Study Courses at New York State College are available to residents of New York State only. The average charge per course in the institutions offering correspondence courses in Agriculture is $6.50 per credit or 66 cents per assignment. At Massachusetts State College the charge is on an average of $4.00 per course or 37 cents for each lesson. This is a favorable price comparison in favor of the Massachusetts State College correspondence courses.
Table 9

The Cost of Agricultural Correspondence Courses

<table>
<thead>
<tr>
<th>College</th>
<th>Number of Lessons</th>
<th>Cost of Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of California</td>
<td>10</td>
<td>$2.00 per course</td>
</tr>
<tr>
<td>University of Florida</td>
<td>9</td>
<td>$3.00 per semester hour for residents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$4.00 per semester hour for non-residents</td>
</tr>
<tr>
<td>Georgia State</td>
<td>10-20</td>
<td>$16.00 per college year = 3 1/3 semester hours</td>
</tr>
<tr>
<td>University of Idaho</td>
<td>8</td>
<td>$4.00 per credit (each course is 2 or 3 credits)</td>
</tr>
<tr>
<td>Kansas State</td>
<td>8-24</td>
<td>$12.50 per year for courses not to exceed eight semester hours for residents</td>
</tr>
<tr>
<td>Massachusetts State</td>
<td>3-25</td>
<td>$17.50 same as above for non-residents</td>
</tr>
<tr>
<td>University of Missouri</td>
<td>2-24</td>
<td>$4.00 (average) per course</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$4.00 course hour. No course less than 2 credits. The only college reporting cost according to number of lessons given.</td>
</tr>
<tr>
<td>University of Nebraska</td>
<td>18</td>
<td>$1.00 registration fee for each student</td>
</tr>
<tr>
<td>North Dakota Agricultural</td>
<td>10</td>
<td>$5.00 for each credit hour</td>
</tr>
<tr>
<td>N.Y. State College</td>
<td>6-15</td>
<td>$5.00 matriculation fee for college credit</td>
</tr>
<tr>
<td>Pennsylvania College</td>
<td>5-13</td>
<td>$3.00 per credit</td>
</tr>
<tr>
<td>University of Wyoming</td>
<td>12</td>
<td>Free to residents in N.Y. State</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1.00 registration fee per course</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$2.00 credit hour--residents of Wyoming</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$4.00 credit hour--non-residents</td>
</tr>
</tbody>
</table>

The matter of financial justification is discussed by several educators from a different point of view. Ashby maintains that institutions appearing before legislative committees on appropriations invariably encounter disapproval of the large sums asked. This disapproval would be quite legitimate if the campus stopped with the buildings and grounds; if the institution did nothing of service for the mass of people of the state. (3) Thomas, who was in charge of the Cleveland Survey of Higher Education, closed his report with the following statement, "...there is a strong obligation resting upon any
such institution of higher learning to justify itself if it does not minister to its people in times and places dictated by the necessities of social and industrial life." (34) Moyer expresses the opinion that the strength of a university lies not in self-sufficiency, but in its relationships and contacts with the people outside its walls. (25) Let each person who doubts the justification of university extension ask himself the question, "Does the university belong to the masses or the classes," (25) and he will see the necessity of such contacts.

To bring the matter home, there is certainly no question but that the Massachusetts State College wishes to keep the good will of many people throughout the State. We are serving the farmer by agricultural extension, but this is not all of life he should know. Surely some federal financial encouragement, similar to that given the Agricultural Extension Service, would undoubtedly enable General Extension Divisions to give other groups of people a service which would bring as great transformation to their lives as Agricultural Extension has brought to the farmer.

The Massachusetts State College should continue to serve the farmer by offering a more elaborate organization of correspondence studies, either by adding new courses or by changing the system to meet the need of a greater number of people. This statement raises a problem that will be considered later.

The viewpoint of college faculties is now to be considered. In 1917, President McVey, of the University of North Dakota, attempted after a survey to give the position of college administrators and professors on extension teaching. (26) These are the men who hold aloft the torch of higher learning, set its standards and safeguard its integrity. The results of his survey showed considerable lack of agreement, as follows:

1. Some felt that much of university extension had developed
along lines of least resistance, adopting methods having most evidence of popular support.

2. Others that the universities have not fully realized the possibilities of correspondence instruction.

3. And finally that there is much variance of opinion among university men from enthusiastic endorsement to complete disapproval. Some doubt the abilities of universities to attempt it. Some feel that academic standards are lowered. Others regard correspondence instruction as more effective than residence teaching.

The gist of the matter is that there was, and still is, no unanimity of opinion.

Professor W. S. Bittner regards those who do the teaching in correspondence study as the only ones who can speak authoritatively of the methods and results in their own courses. He says, "The two conclusions that instructors with experience quite generally support are: that correspondence teaching on the whole is as necessary, desirable and effective as classroom instruction; and that under certain conditions, for certain purposes, course by course, correspondence instruction may be decidedly superior." Moreover, he states that "most experienced teachers believe emphatically in the value of correspondence instruction for credit." Many would make the assertion that instructors are biased in favor of a "renumerative occupation or an accepted method." The answer to this is the simple fact that "with few exceptions compensation for correspondence teaching is small." Most instructors who conduct correspondence courses do their work not only because it is expected of them, but also because they believe in it.

The general concensus of opinion of the instructors at the Massachusetts State College is that correspondence study does have its place and that there
is little reason for the present trends in enrollments, other than the fact that the lack of advertising keeps the people of Massachusetts ignorant of the offerings in this field. The instructors believe that correspondence courses are desirable because they fit into special conditions. They meet the needs of students who have individual problems to solve. Surely the extension service does not have a more authoritative offering than the faculty of the Massachusetts State College. It is not the writers object, at this point, to analize the effectiveness of the methods used by the Extension Service.

At any rate, no definite conclusions can be drawn from this subjective set of opinions of administrators and professors.

In order to arrive at the students' viewpoint on the justification of extension teaching, Malder sent questionnaires to 100 mature correspondence students. He asked them to state whether or not they considered extension work justifiable and to give their reasons. All replied and were unanimously agreed that the service has justified itself. (26)

The main point to note is that the students were agreed unanimously if the college faculties were not. The weakness of this conclusion, however, is that a hundred cases are too few in number: the results of a thousand replies would be more valuable. Extension work is not perfect and there may be times when it may not be justifiable from the students' viewpoint either.

Nearly parallel with Malder's survey are the results obtained by the writer. While Malder dealt with a group of University Extension students, the writer obtained his data from those influenced by correspondence study in agriculture. In answer to the question, "Was the correspondence course worth the money invested in it?", eighteen failed to answer and eighty-two felt that the courses were very much worth the investment made in them.
Two individuals felt the courses were not satisfactory. However, there is still a figure of 97.69 per cent who benefited by these courses. Other facts, too, contribute greatly to give the writer a firm conviction that students of correspondence study appreciate this method of instruction.

Perhaps a few extracts of letters received from Massachusetts State College correspondence students will present a better picture of the justification of correspondence courses.

One individual writes:

"In qualifying for a position as foreman for a large milk distributing company in Boston, I took the course so as to know more about the product we sold, its history, etc., from production and so as to get a general talking knowledge and a proper use of terms, etc. I succeeded and also interested another fellow worker who received a good position in the selling force. I still retain my lessons, books and papers, and refer them to help new men at times."

Another writes:

"I took this flower course so that I would understand a little about flower growing. I enjoyed the course very much and it has proved very helpful to me."

Another interesting letter says:

"Several years ago I took up and finished the course in 'Apple Growing' to my great satisfaction. I had then begun to set out a small orchard—something that I had long wished to do, mainly as a hobby. This orchard now contains something over 100 trees. I feel that the course was of great value to me and that it laid a sound foundation on which to build from experience and further study. Although I cannot claim to be an expert, I feel that I know a lot of necessary things about fruit growing."

In reply to a follow-up card, the following letter was received:

"Concord, Massachusetts
April 3, 1933.

Mr. Earle S. Carpenter
Supervisor of Correspondence Courses
Amherst, Massachusetts

Dear Sir:

The questionnaire mentioned on the enclosed card I have never received, probably because it was not forwarded from my former address. If you will send me another questionnaire to
the above address, I shall be only too glad to fill it out and return it to you. This is the least I could do in return for all the help your department has always so courteously given me. Three years ago I didn't know a rooster until it crowed. Now I have five hundred healthy six-weeks-old chicks.

With appreciation for the services of the department, I am

Sincerely yours,

Lillian Shea."

Several other letters of appreciation and satisfaction have come to the writer concerning the Massachusetts State College correspondence courses as a result of this survey. Moreover, like cases have been mentioned from other colleges. Mr. Thordorson, Director of Correspondence at the North Dakota Agricultural College writes of an interesting case.

He says:

"According to letters we have received from our students this home-study work is of great help to them. Many report definite improvements and some of them have reported securing positions on the strength of this work. A student living in New York State comes to my mind as an unusual example. He did not have an eighth grade education and therefore he was denied entrance to the farm short course at the state agricultural school. His dream was to get into dairy work.

After completing our dairy courses he was permitted to take examination for cow-tester or something. He was a very excellent student and he passed with a fine grade. Shortly afterwards he obtained a position at $150.00 a month. Later he went with a commercial concern. Inside of two years he had been promoted to a $5,000 job.

According to a letter received from him after this had happened, he gave our courses credit for the opportunity he made the most of.

You will find that the help that a correspondence course gives often accomplishes wonders."

Mr. H. M. Butterfield, Supervisor of Correspondence Courses at the University of California writes:

"The effectiveness of correspondence course instruction in agriculture is rather hard to express in terms of actual results. We have many letters over a period of more than 15 years which would indicate that the instruction has been very beneficial."

The reader must not be misled by these favorable quotations to believe that correspondence study in agriculture has in itself every
advantage. There are many weak points which can readily be realized in a consideration of correspondence study vs. resident work. It is not the writer's object, however, to make such a distinction in all of its aspects since mention has been made of this dualism several times in previous chapters.

The one source of data which might be used to discredit correspondence instruction is the relatively high mortality.

The common supposition that the mortality vote in correspondence is inordinately high is only partly confirmed by survey figures and analysis. The crude rate is about 54 per cent, that is, the figure for failure to complete is slightly more than half the enrollment figure in one year. But this includes mere registrations, transfers, and a considerable percentage of enrollments of students who send in only one report, practically "non starts". The percentage of students who, once started, go ahead and complete the course is fairly high; it averages among several tabulations about 63 per cent. Accordingly the mortality vote of 32 per cent compares not unfavorably with that of residence figures which have been computed at about 23 per cent. Moreover, students frequently pursue courses with no intention of completing them in the usual sense, for limited objectives of achievement in study itself. (5)

In the extension courses at the Massachusetts State College enrollments received and courses never finished, many times never started, is around 75 per cent.

The Massachusetts Department of University Extension reports a record of 80 per cent completion of work by students enrolled--nearly four times the record of correspondence course in Agriculture completed at Massachusetts State College.

California University reports a completion record of less than 50 per
Figure 3

The Enrollment and Completion of Correspondence Courses in Agriculture at Massachusetts State College for the Period 1926 to 1930 Inclusive

- Total Enrollment: 837
- Number Completing Courses: 206
- Number Discontinuing Courses: 290
- Number Failing to Start Courses (no lessons sent in): 341
cent, which although not very high is twice that of Massachusetts State College. Director Butterfield says, "Our correspondence course students are normally very sincere in their endeavor to secure helpful information and therefore have given close attention to answering the questions correctly. Results in this state do not differ greatly from those in other states as near as I have been able to determine. Completions in correspondence courses are usually low, often not more than 50 per cent and even lower than this where a course is difficult and uninteresting." So in non-credit work the mortality is even higher. But successful students, such as those of whom Malder sent his questionnaire, could say this failure is the fault of the student, not of the course; that a student lacking in perserverance and determination has no more cause to be taking correspondence work than a student with I.Q. below 100 has of attempting an academic college education. Even as colleges and universities are judged by their successful graduates, so should the justification of correspondence instruction be judged by those who have successfully completed such work.

The writer would not be so radical as to apply Malder's conception of opinion to the correspondence courses as offered at Massachusetts State College as has been mentioned before, the group to which the Massachusetts State College courses are given--are not interested as much in cultural advancement as they are in gaining knowledge for their own work--and it must be agreed that "lack of time" is a great factor in any farmer's life. So from the writer's questionnaire the reasons given for dropping courses was headed by "lack of time". The following table will show this.
Table 10

Reasons for Dropping A Course

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost interest</td>
<td>4</td>
<td>9.52</td>
</tr>
<tr>
<td>Course too hard</td>
<td>3</td>
<td>7.14</td>
</tr>
<tr>
<td>No time to do it</td>
<td>28</td>
<td>66.66</td>
</tr>
<tr>
<td>Did not like to write all</td>
<td>10</td>
<td>23.8</td>
</tr>
<tr>
<td>the time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ill health</td>
<td>5</td>
<td>11.9</td>
</tr>
<tr>
<td>Other reasons</td>
<td>4</td>
<td>9.52</td>
</tr>
</tbody>
</table>

Total number reporting - 42

The percentages equal over 100 because several gave more than one reason for dropping a course. Without a doubt, "lack of time" is the major reason for the high mortality in correspondence courses at the Massachusetts State College in the field of agriculture. Moreover, many find it inconvenient and unpleasant to write out the lessons even though they do desire to learn more information in their fields. This is an important factor in suggesting a change in the method of assignments and written exercises. However, before such a step can possibly be made, it will be well to consider some of the methods of correspondence study. The following chapter will be devoted to this subject.
Figure 4

The Distribution of Reasons for Dropping Courses by Correspondence
The Massachusetts State College Given in Percent

- No time: 65.55%
- Hate to Write So Much: 23.8%
- Poor Health: 11.9%
- Lost Interest: 9.52%
- Other Reasons: 9.52%
- Too Hard: 7.14%
CHAPTER VI

THE CORRESPONDENCE STUDY METHOD

The disadvantages of the correspondence study method are much more obvious than its advantages. Our whole system of education has accustomed us to think of learning in terms of school attendance, recitations, drills, lectures, and similar classroom procedure. Even the project method, which departs from the usual classroom procedure and allows more student freedom, requires more self-reliance and initiative, and calls for less actual instruction, although much more intelligent guidance, has had its share of criticism. Nor can it be denied that the present method of education by the classroom method is the best that can be devised for teaching in groups, or the direct teacher-pupil relationship the best for individual teaching.

It is hard to keep up interest in correspondence study, whether the desire is an extrinsic one—that of getting needed credit toward a degree—or whether the course is being taken for its own sake. It is a difficult task to settle down for two or three hours of reading and writing after a day's work. As Bernard says, "Lack of stimulus of companionship, the absence of emulation, the remoteness of the reward and the slowness of the process all tend to discouragement...." (4)

Correspondence study students themselves much prefer classroom instruction in the great majority of cases. The chief reasons for preferring residence work would be, perhaps, that they do not want to (a) miss class discussions and the inspiration to be derived from contacts with fellow students, (b) miss the personal relationship with the instructor, and (c) miss better instruction. Each reason given here is quite valid.

Class discussion (a) which combines both intellectual and social training, is fully as important, if not more so, than the social life. The personal contact with the instructor (b) is undoubtedly the most important of all.
Without a doubt, the instruction, suggestions and individual help that can be given by the instructor is of great help to those who are really searching for knowledge. It is rather questionable, however, whether the average student in college, regardless of his field of study, takes advantage of the information that is available for his consumption. The ideal situation would be to have each correspondence student desiring real information to attend college. It is easy to see, at this point, the justification of the short courses at the Massachusetts State College.

But to return to the subject of the instructor, there is more personal contact in correspondence work, however, than many people think. The following statement, based upon the actual experiences of an instructor engaged in correspondence work, is made by McLean, "No investigating body can ever really find out how the thing is done unless it has all the returned lessons in a course, together with the private correspondence that has been carried on: in short, the friendship that has been established." (21)

Still this is a serious enough problem so that some administrators have considered a personal acquaintance blank to give more intimate knowledge of the students' life and habits. (6)

The Massachusetts State College has such a blank for the benefit of the instructor and the information offered gives the instructor some idea of the student's objective in taking any particular course. Such a blank will be found in Appendix A.

Such a blank should work both ways because the student is entitled to some knowledge of the instructor as well. The writer would, therefore, suggest that each correspondence student have the information concerning the authority of the instructor in his particular field.

Perhaps too much may be said about correspondence courses as a "poor instruction" method. Leaving out the admitted drawback of personal contact
with the instructor, instruction is to be judged by the quality of the work and the subject matter covered, time spent in preparation and the amount of supplementary material required.

In most cases it will be found that the courses offered by correspondence at Massachusetts State College are approximately parallel with those offered in the Stockbridge School of Agriculture. As pointed out in a previous chapter, correspondence study can be justified primarily by the students themselves—and the benefit to be derived from any one course is about wholly up to the student's individual efforts. Granting that correspondence study courses, especially in such a field as agriculture, has many disadvantages, it also has many good points which have previously been considered.

To dwell upon the advantages of correspondence study will be merely to repeat points which have already been given by Lightly, Moyer, Maphis, Alderman and others: points which will be found in the introduction to Correspondence Study bulletins from all the schools offering the work. For the average reader not acquainted with this material the following advantages of correspondence study are briefly enumerated:

1. Direct tutor-pupil relationship in contrast to mass teaching—individual instruction.

2. Has the undivided attention of the instructor.

3. Each student answers all questions—bluffing or failing to "crack a book" is out of the question.

4. Student may set his own pace, unhurried by the more brilliant and unhampered by sluggards.

5. Courses prepared with greater exactness than in residence.

The present form of correspondence study assignment at Massachusetts State College consisted of a list of questions on assigned chapters or on certain material in the text and assignments. There is not so much wrong with them as far as the average student is concerned. The chief criticism
is that they could be so much better. No student, in class or not, likes to feel that the instructors' sole interest is in getting a mass of questions answered. The three forms which are now being used, and which are gradually replacing the obsolete form (the one at Massachusetts State College) just mentioned, are: (a) the study method, (b) the problem or case method, (c) and the test form method. Credits for this terminology belong to Brainard. (6)

1. The Study Method is well adapted to all types of courses. Its intention is to teach the pupil how to study a certain topic by presenting a carefully prepared outline, or a discussion of the pertinent points; it allows the student some freedom and initiative in his organization of the material; and it requires a personal application of the facts and principles studied to the student's own situation. Reference readings are given for each assignment. The student's criticism or reaction is requested and an opportunity is given for any questions. (A sample assignment of this type will be found in Appendix B.)

2. The Problem or Case Method consists of a statement of the problem for each particular lesson. Following a discussion and statement of the problem are given a number of detailed questions, the answers to which lead up to its solution. This problem method calls for individual initiative and its value depends on the ability of the teacher to ask relevant and vital questions. (A sample assignment of this type will be found in Appendix B.)

3. The Test Form Method as explained by Brainard, is the objective type, following the form of standard test, and calls for specific responses to certain questions. This form saves writing for the student, but causes the instructor much more work in preparing the course. The objection lies in its mechanical nature, which allows no opportunity for expression in clear, concise English, permits no originality and makes it less possible to get personal reactions. (A sample assignment will be found in Appendix B.)
The "test form" method would seem advisable for the correspondence courses at Massachusetts State College since it requires the minimum amount of writing and it would serve the purpose as well as long discussion questions now used in the average correspondence assignment.
CHAPTER VII

THE INTERPRETATION OF THE QUESTIONNAIRE USED IN THIS STUDY

Because of the limitations set up by the small number of questionnaires returned, it cannot be expected that the objectivity of the data to follow is to be exact in every respect. Had all the questionnaires been returned it is without question that this study would have been more valid. The writer, however, feels that a fair cross section has been made and that important conclusions can be made from the data reported. At best, though, it can merely outline in skeleton form the general information concerning the group effected by the Massachusetts State College correspondence courses, the influence of the courses on this group, and the outside influence affecting this group at present. Data concerning the questionnaire sent out is shown in the following table.

Table 11

Data Concerning Questionnaire Sent Out

<table>
<thead>
<tr>
<th>Group per cent sent out</th>
<th>Number sent out</th>
<th>Number returned</th>
<th>Group per cent returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.55</td>
<td>All subjects but poultry (completed)</td>
<td>74</td>
<td>34</td>
</tr>
<tr>
<td>17.00</td>
<td>Poultry (completed)</td>
<td>67</td>
<td>26</td>
</tr>
<tr>
<td>27.30</td>
<td>All courses but poultry (discontinued)</td>
<td>108</td>
<td>20</td>
</tr>
<tr>
<td>36.70</td>
<td>Poultry (discontinued)</td>
<td>145</td>
<td>25</td>
</tr>
</tbody>
</table>

It is interesting to note that the cooperation received in this survey is primarily by the groups which completed the courses. By a study of columns (1) and (5) it can be seen that the questionnaires returned according to groups is about inversely proportional to the number sent out. Since this study is mainly interested in the students who have completed the courses, the above table gives a better understanding of the validity of
Figure 5

The Distribution of the Questionnaire to Former Correspondence Students of the Massachusetts State College and the Returns Received.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students discontinuing poultry courses</td>
<td>145</td>
</tr>
<tr>
<td>Students discontinuing other courses</td>
<td>108</td>
</tr>
<tr>
<td>Students completing other courses</td>
<td>74</td>
</tr>
<tr>
<td>Students completing poultry courses</td>
<td>67</td>
</tr>
</tbody>
</table>

Dode: Number of returns received
The Geographical Distribution of M.S.C. Correspondence Students Who Completed Courses (1926-1930 Incl.)
MASSACHUSETTS STATE COLLEGE

EXTENSION SERVICE

MASSACHUSETTS

THE GEOGRAPHICAL DISTRIBUTION OF M.S.C. CORRESPONDENCE STUDENTS WHO DISCONTINUED COURSES (1926-1930 INCL.)
the number of questionnaires to be discussed during the rest of this chapter.

The following table presents a summary of the data obtained from the questionnaire on the general information concerning the individuals included in this study.

Table 12
General Information Relating to the Individuals Included in the Study

<table>
<thead>
<tr>
<th>Item</th>
<th>No. records obtained</th>
<th>Number</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Average size of farm (acres)</td>
<td>75</td>
<td>43.26</td>
<td>65 per cent</td>
</tr>
<tr>
<td>2. Farms located on improved roads</td>
<td>80</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>3. Average distance to town</td>
<td>72</td>
<td>3.02</td>
<td></td>
</tr>
<tr>
<td>4. Average years at farming</td>
<td>68</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>5. Average years on present farm</td>
<td>68</td>
<td>9.34</td>
<td></td>
</tr>
<tr>
<td>6. Work on commercial scale</td>
<td>87</td>
<td>69</td>
<td>79.32 per cent</td>
</tr>
<tr>
<td>7. Farms operated by owners</td>
<td>67</td>
<td>56</td>
<td>83.58 per cent</td>
</tr>
<tr>
<td>8. Farms operated by tenants</td>
<td>67</td>
<td>11</td>
<td>16.42 per cent</td>
</tr>
<tr>
<td>9. American farmers</td>
<td>97</td>
<td>76</td>
<td>78.35 per cent</td>
</tr>
<tr>
<td>10. Adults per family</td>
<td>87</td>
<td>180</td>
<td>2.07 adults</td>
</tr>
<tr>
<td>11. Average age</td>
<td>88</td>
<td>42.93</td>
<td></td>
</tr>
<tr>
<td>12. Farms with children</td>
<td>49</td>
<td>118</td>
<td>2.2 children</td>
</tr>
<tr>
<td>13. Children (10-20 years) in school</td>
<td>30</td>
<td>66</td>
<td>2.2 children</td>
</tr>
<tr>
<td>14. Homes with radios</td>
<td>102</td>
<td>80</td>
<td>78.43 per cent</td>
</tr>
<tr>
<td>15. Homes with telephones</td>
<td>105</td>
<td>62</td>
<td>59.04 per cent</td>
</tr>
<tr>
<td>16. Members of Farm Bureau</td>
<td>105</td>
<td>11</td>
<td>10.47 per cent</td>
</tr>
<tr>
<td>17. Farms keeping accurate reports</td>
<td>67</td>
<td>45</td>
<td>67.7 per cent</td>
</tr>
<tr>
<td>18. Neartness to market for products</td>
<td>68</td>
<td>8.75</td>
<td></td>
</tr>
<tr>
<td>19. Education of students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>105</td>
<td>42</td>
<td>40.07</td>
</tr>
<tr>
<td>College</td>
<td>105</td>
<td>14</td>
<td>13.33</td>
</tr>
<tr>
<td>20. Average leisure time (per week)</td>
<td>63</td>
<td>18.07</td>
<td></td>
</tr>
</tbody>
</table>

The average size of the farm reported was about 43 acres and the average distance from town was 3.02 miles. The farmstead was located on a graded or paved road in 65 per cent of the cases. The average years at farming was 12 years and the average years spend on the present farm was 9.34 years. About 79 per cent carried on farming on a commercial scale, while the average distance to the market of products was 8.75 miles.

Approximately 83 per cent of the farms included in the study were operated
by the owners and the remaining 17 per cent by tenants. Over 78 per cent of the Massachusetts State College correspondence students studied were American farmers while the average age of these students was 42.93 years. The adults reported were slightly over two per family. Children of club age (10 to 20 years old) were found in less than one-third of the homes, the total number of children of club age being slightly in excess of one-half of the total number of families reported. Telephones were found in 59.04 per cent of the homes and a radio in 73.35 per cent of them. Forty per cent of the individuals reported a high school education and 13.33 per cent reported a college education. Only 10 per cent of the farms were members of the Farm Bureau. Approximately 67 per cent of the farmers keep an accurate report of farm costs and profits. The average leisure time reported per week was 13.07 hours for each farmer or 2.58 hours per day.

Such is a brief summation of the general facts relating to the Massachusetts State College correspondence students to be considered more fully during the next few pages.

It must be remembered, however, that it is not the writer's intention to tie up each item mentioned in the "general information table" with the justification for correspondence study. For to say "that because an individual or a group has 13.07 hours of leisure time a week—correspondence study should generally follow" would be ridiculous. It is rather the writer's object to point out some of the facts which may be typical of the group influenced by Massachusetts State College correspondence courses in Agriculture. Some of the questions that will be answered are "who takes the courses?", "what group is interested in the self promotion of their work?", "what are some of the characteristics of this group?", "what facts can be used to bring judgment on the type of correspondence course that would be more suited for Agricultural study?". And since the extension
worker is vitally interested in conducting his work with the highest possible efficiency, such information should be helpful in suggesting new programs for the Massachusetts State College correspondence courses.

The following table is an analysis of the cases studied on the item "size of farm".

Table 13
Size of Farm

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of farms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 acres</td>
<td>21</td>
<td>28.</td>
</tr>
<tr>
<td>6 - 20 acres</td>
<td>15</td>
<td>20.</td>
</tr>
<tr>
<td>21 - 50 acres</td>
<td>22</td>
<td>29.33</td>
</tr>
<tr>
<td>51 - 100 acres</td>
<td>9</td>
<td>12.</td>
</tr>
<tr>
<td>101 or over</td>
<td>8</td>
<td>10.66</td>
</tr>
</tbody>
</table>

The farm families living on the smaller farms made a somewhat greater use of Massachusetts State College correspondence courses. It will be noted, however, in a later table that a large number of individuals carry on truck gardening farms and their interest is primarily in the most efficient use of the land. Perhaps this is one factor explaining (the above table concerning) the use of correspondence courses in agriculture by those living on small farms. The commercial farmers reported were those living on the farms less than 50 acres.

The table below will show the type of roads on which former correspondence students' farms are located.

Table 14
Nature of Roads

<table>
<thead>
<tr>
<th>Nature of Roads</th>
<th>Number of farms</th>
<th>Percentage of all farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paved</td>
<td>52</td>
<td>65.</td>
</tr>
<tr>
<td>Graveled</td>
<td>9</td>
<td>11.25</td>
</tr>
<tr>
<td>Dirt</td>
<td>19</td>
<td>23.75</td>
</tr>
</tbody>
</table>

Those making use of the correspondence courses at Massachusetts State
College were primarily the group located on improved roads. Today when the roadside stand is an important means of selling farm products—new information is especially helpful. It would almost be expected, however, that correspondence courses would be more popular among individuals in more rural districts where dirt and travel roads are more prevalent.

An analysis of cases as to "distance to town" will be shown in the next table.

Table 15

Distance to Town

<table>
<thead>
<tr>
<th>Distance in miles from town</th>
<th>Number of farms</th>
<th>Percentage of all farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 - 0.9 miles</td>
<td>10</td>
<td>13.68</td>
</tr>
<tr>
<td>1. - 3. &quot;</td>
<td>41</td>
<td>56.8</td>
</tr>
<tr>
<td>4. - 10. &quot;</td>
<td>18</td>
<td>25.9</td>
</tr>
<tr>
<td>11. miles and over</td>
<td>3</td>
<td>4.16</td>
</tr>
</tbody>
</table>

It is interesting to note the popularity of the courses used by the group living between 1 and 3 miles from town. Commercial growing is probably again playing an important part in this group and arousing the desire for information on agricultural subjects.

The following table shows the amount of farming experience of the group studied.

Table 16

Years at Farming

68 reports useable
Average number of years per farm - 12

<table>
<thead>
<tr>
<th>Number of years of farming</th>
<th>Number reporting</th>
<th>Percentage of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 5</td>
<td>23</td>
<td>33.32</td>
</tr>
<tr>
<td>6 - 10</td>
<td>20</td>
<td>29.11</td>
</tr>
<tr>
<td>11 - 15</td>
<td>6</td>
<td>8.32</td>
</tr>
<tr>
<td>16 - 25</td>
<td>9</td>
<td>14.7</td>
</tr>
<tr>
<td>over 26</td>
<td>10</td>
<td>13.23</td>
</tr>
</tbody>
</table>

Over 62 per cent of the group studied have farmed for less than ten
years. So this group represents quite fairly those who are starting in farming, those who have practiced farming and desire to improve their methods and those who want to "keep abreast with the times". It is the opinion of the writer that a large percentage take the correspondence courses before starting in any farming at all. Several have reported that the correspondence course was a basis for their work.

The years of farming on the present farm for the group studied will be shown in the following table.

Table 17
Years on Present Farm

<table>
<thead>
<tr>
<th>Number of years on present farm</th>
<th>Number reporting</th>
<th>Percentage of costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2.5</td>
<td>3</td>
<td>4.39</td>
</tr>
<tr>
<td>3 - 5</td>
<td>21</td>
<td>30.35</td>
</tr>
<tr>
<td>6 - 10</td>
<td>26</td>
<td>38.21</td>
</tr>
<tr>
<td>11 - 15</td>
<td>7</td>
<td>10.29</td>
</tr>
<tr>
<td>16 - 20</td>
<td>5</td>
<td>7.35</td>
</tr>
<tr>
<td>21 and over</td>
<td>6</td>
<td>3.82</td>
</tr>
</tbody>
</table>

While over 73 per cent of the individuals reporting have lived on the present farm from 1 to 10 years, the major group most influenced was that one whose members have lived on the present farms from 6 to 10 years. However, it should also be noted that 63 per cent have lived on the present farm for over 6 years. It is evident, then, that the individuals reporting have had a good deal of practical experience and are still anxious to gain new information in their fields. The popularity of the checks on "to keep abreast of the times" and "to keep up habits of study" under the reasons for taking the courses can be justified, then, in a way, by the figures in the above table.

The scale of farming carried on by this group will be shown in the next table.
Table 18

Scale of Farming

Number reporting - 87

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>69</td>
<td>79.32</td>
</tr>
<tr>
<td>Hobby</td>
<td>20</td>
<td>23.09</td>
</tr>
<tr>
<td>Private</td>
<td>18</td>
<td>20.58</td>
</tr>
</tbody>
</table>

The percentages in the above table equal over 100 per cent because nearly all of the individuals reporting "private" also checked "hobby". There is no doubt but that the correspondence students are a group of individuals desiring information to promote an increase in financial return and self promotion. Correspondence study is merely one of their methods, however, as will be shown a little later.

An analysis of the types of farms reported is shown in the following table.

Table 19

Types of Farms

Number reporting - 68

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poultry</td>
<td>24</td>
<td>35.28</td>
</tr>
<tr>
<td>Dairy and poultry</td>
<td>8</td>
<td>11.76</td>
</tr>
<tr>
<td>Dairy</td>
<td>6</td>
<td>8.82</td>
</tr>
<tr>
<td>Pomology</td>
<td>10</td>
<td>14.7</td>
</tr>
<tr>
<td>Floriculture</td>
<td>6</td>
<td>8.82</td>
</tr>
<tr>
<td>Diversified</td>
<td>14</td>
<td>20.58</td>
</tr>
</tbody>
</table>

Poultry, pomology, and dairy and poultry are the most popular types of farming making use of correspondence courses at Massachusetts State College. The item "diversified" includes primarily those carrying on farming privately or as a hobby.

The status of the "land tenure" for this group will be shown in the table below.
Table 20

Land Tenure

Number reporting - 67

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners</td>
<td>56</td>
<td>83.58</td>
</tr>
<tr>
<td>Tenant</td>
<td>11</td>
<td>16.42</td>
</tr>
</tbody>
</table>

Less than 17 per cent of the farms included in the study were operated by tenants making the popularity of correspondence courses among owners over 5 times that of among the tenants. This is somewhat opposite from what would generally be expected.

The nationality of farmers who have taken advantage of correspondence study at Massachusetts State College will be shown in the following table.

Table 21

Nationality of Farmers

Number of reports - 92

<table>
<thead>
<tr>
<th>Item</th>
<th>Number Reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>American</td>
<td>72</td>
<td>73.25</td>
</tr>
<tr>
<td>Swedish</td>
<td>2)</td>
<td></td>
</tr>
<tr>
<td>Canadian</td>
<td>3)</td>
<td>21.75</td>
</tr>
<tr>
<td>Scotch</td>
<td>3)</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>4)</td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>4)</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>4)</td>
<td></td>
</tr>
</tbody>
</table>

The nationality of correspondence students is not very important, but it is interesting to note the above figures and to note the popularity of the courses by Americans although other nationalities are fairly well represented in a small way.

A general idea of the "size of families" reported will be found in the following table.
Table 22

Size of Families

<table>
<thead>
<tr>
<th>Item</th>
<th>Number reporting</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>180</td>
<td>2.14 persons per family</td>
</tr>
<tr>
<td>Size of families</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>7.14</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>71.42</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>12.90</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td>5 and over</td>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td>Children</td>
<td>117</td>
<td>2.6 children per family of group reporting and 1.19 children per family for the whole group studied.</td>
</tr>
</tbody>
</table>

The majority of the families reported only two adults which might mean several possible interpretations. Few facts are present to uphold any valid conclusions. The average for the children in the families reporting is 2.6 while for the whole group the average is about 1.2 children per family. The number of children in school, the number of adults and the size of the family will be important later on in the consideration of outside influences—and especially the efficiency of the extension service in effecting this particular group.

A list of the age groups of farmers who have used Massachusetts State College correspondence courses will be found in the following table.
Table 23
Relation of Age of Farmers to the Use of Correspondence Courses at the Massachusetts State College

Number reporting = 88
Average age = 42.92

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 30</td>
<td>12</td>
<td>13.63</td>
</tr>
<tr>
<td>31 - 40</td>
<td>23</td>
<td>31.31</td>
</tr>
<tr>
<td>41 - 50</td>
<td>29</td>
<td>32.95</td>
</tr>
<tr>
<td>51 - 60</td>
<td>12</td>
<td>13.63</td>
</tr>
<tr>
<td>61 and over</td>
<td>7</td>
<td>7.95</td>
</tr>
</tbody>
</table>

A curve plotted for the above table would make a fairly regular curve to be sure. The years 31 to 59 are more popular than would be expected--for it is generally believed that most people take courses between the ages 20 to 30.

Age does not seem to be an important factor in the acceptance of correspondence courses by farmers. Although the percentage of farmers influenced by correspondence courses is highest for the group about 45 years of age and under, the differences between the groups is not too great.

Apparently the individuals influenced by Massachusetts State College courses have taken the courses when they felt a definite need for help. No definite correlations can be made between the age of the student and reasons for taking these courses--for the number represented is too small.

It is of interest to know, though that the average age is 42.92 years among the group studied. The education of the group studied is shown in the following table.

Table 24
Education of Students

Number reporting = 105

<table>
<thead>
<tr>
<th>Education</th>
<th>Number reporting</th>
<th>Per cent of group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common or less</td>
<td>49</td>
<td>46.66</td>
</tr>
<tr>
<td>High school</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>College</td>
<td>14</td>
<td>13.33</td>
</tr>
</tbody>
</table>
The Distribution of Massachusetts State College Correspondence Students by Age

- 31.6%
- 32.9%
- 13.9%
- 7.9%

The average age is 42.9 years
A little over half of the group reported on education of at least high school grade. Considering the average age of this same group (42 years), the education report is very favorable. Since scientific farming is ever increasing, it would be expected that a future survey would find a much higher percentage of well prepared individuals in the field of agriculture. To say the least, one half of the students are well prepared to do a good job of the correspondence courses, other factors permitting.

Data on the number of farmers keeping accurate reports of farm costs and profits will be found in the following table.

| Table 25 |
|------------------|------------------|------------------|
| Farmers Keeping Accurate Reports of Farm Costs and Profits |
| Number reporting - 67 |
| Accurate reports | Number reported | Per cent |
| Yes | 45 | 69.17 |
| No | 22 | 32.83 |

About two-thirds reported keeping accurate reports of farm costs and profits. In general, it was the commercial farmers who reported they kept accurate records. One correspondence student said he noticed an increased profit due to his improved methods obtained through the influence of the correspondence courses. It would be the tendency of the private farmer to let such reports slide by and to profit as best he can.

The following table gives an analysis of the cases as to nearness to market for products.
Sable
26
Nearness to Market for Products

Number of reports received - 68
Average distance - 8.75 miles

Distance (miles) | Number reporting | Percent of whole group
--- | --- | ---
1 - 3 miles | 14 | 20.58
4 - 6 " | 16 | 23.52
7 - 10 " | 11 | 16.17
11 - 15 " | 4 | 5.83
16 - 20 " | 6 | 8.82
21 and over | 6 | 8.82

The market for products, then, is in most cases not over 10 miles from the farm since 76 per cent do not have to go more than 10 miles while about 60 per cent do not go more than 6 miles and 44 per cent, three miles. Truck farming and farming on a commercial basis probably accounts, to a great extent, the short distance for the market of products for this group. While 44 per cent go three miles to markets—it is interesting to note that there is a high correlation between this figure and the average distance to town, which was 3.02 for the whole group.

The leisure time per week has been considered in a previous chapter as a factor, the weakness of which has, perhaps, been the greatest influence causing the high mortality of correspondence courses at the Massachusetts State College. There is little need of further mention of this item at this point.

The items radio, telephone, and Farm Bureau will be considered in the following discussion on "present and past influences" on the group now under consideration.

From the above tables and discussion of "general information" of the persons sending back the questionnaires—a relatively general idea can be gained concerning the group influenced by correspondence study courses of
the Massachusetts State College. Only a few correlations and tie-ups have been made because the few reports received are not sufficient to make definite clearcut conclusions. However, a typical individual can be made from the above data. Such will be given in the conclusions of this study.

The second part of the interpretation of the questionnaire is a review of the outside sources of information which have influenced and are at present working to influence former correspondence students of the Massachusetts State College.

Before proceeding with the data, it will be well to present a birds-eye view of what is being done in Massachusetts by the extension service and such should point out the actual possibilities of information to be gained from outside sources.

Extracts from Director Munson's report in the Massachusetts State College Bulletin #2 for February 1933, sums up the situation very well. He says, "Approximately two hours a day are being given by the radio stations of the state to the broadcasting of information prepared by our staff. On the basis of a survey made during the summer and the number of requests received for bulletins, it is estimated that our radio audience for Farm Flashes numbers about 5,000. At the present time, seven stations are using our daily broadcasts of Farm Flashes, and Station W.B.Z. gives a regular period each week for a farm forum, a home forum, and a 4-H program." Moreover, he states, "Our informational news service of about 19 releases per month has been continued to a selected list of approximately 100 daily, weekly and farm papers. Sixteen extension leaflets have been revised and nine new ones printed. Many individuals who are not able to participate in some phase of our extension teaching within the counties derive a great deal of assistance from these publications which they secure upon direct request."
He goes on to say, "The finest and least expensive Farm and Home Week program was presented to the largest attendance ever recorded. The citizens of the Commonwealth are realizing that the week affords not only an opportunity to secure information of vital interest in conducting their farm and home activities, but also a profitable vacation. Small unit exhibits were again featured at the various fairs in the state; one of the most popular was a coordinated exhibit of gardening, canning and nutrition. Program Hints, a monthly service to program committees, was distributed to about 350 organizations." (22)

Now, to get back to the data at hand, it can be determined relatively to what degree the average Massachusetts State College correspondence student is affected by the many sources of information offered in the field of agriculture.

The following table will present a fair picture of the possible influence of radio on the group considered.

Table 27

<table>
<thead>
<tr>
<th>Influence of Radio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farms with radio</td>
</tr>
<tr>
<td>Percentage of all farms</td>
</tr>
<tr>
<td>Number getting farm programs over radio</td>
</tr>
</tbody>
</table>

There is a possibility, then, that the majority of farmers can make use of the information offered by radio if they desire to do so.

Some idea as to the type of radio program preferred can be found in the following table.
Table 23
Radio Program Preferred

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>Number reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musical</td>
<td>40</td>
<td>43.78</td>
</tr>
<tr>
<td>Lectures</td>
<td>24</td>
<td>29.26</td>
</tr>
<tr>
<td>Instructive talks</td>
<td>10</td>
<td>12.19</td>
</tr>
<tr>
<td>News</td>
<td>8</td>
<td>9.75</td>
</tr>
<tr>
<td>Plays, operas</td>
<td>7</td>
<td>8.65</td>
</tr>
<tr>
<td>Sports</td>
<td>5</td>
<td>6.09</td>
</tr>
</tbody>
</table>

The above table is about what would be expected of any group of people regardless of their business, vocation or profession. Several expressed their great dislike for jazz but this is another problem.

Some data on the radio programs used in the field of agriculture will be shown in the following table.

Table 29
Radio Programs in Your Field

<table>
<thead>
<tr>
<th>Program</th>
<th>Number reporting</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm and Home Hour</td>
<td>11</td>
<td>13.41</td>
</tr>
<tr>
<td>Poultry</td>
<td>12</td>
<td>14.63</td>
</tr>
<tr>
<td>Marketing (reports)</td>
<td>10</td>
<td>12.75</td>
</tr>
<tr>
<td>Gardening</td>
<td>9</td>
<td>10.98</td>
</tr>
<tr>
<td>General farm</td>
<td>26</td>
<td>32.80</td>
</tr>
<tr>
<td>Fruit</td>
<td>4</td>
<td>4.37</td>
</tr>
<tr>
<td>Dairy</td>
<td>4</td>
<td>4.87</td>
</tr>
<tr>
<td>Flowers</td>
<td>3</td>
<td>3.65</td>
</tr>
</tbody>
</table>

The percentages in the above table equal over 100 per cent because several reported programs in more than one field. Nevertheless, over 84 per cent of this group received information, in one way or another, by radio and it is quite probable that in the past they have received as much information proportional to the development of the agricultural programs of the time. The use of radio is reported small in comparison with other methods used to gain new knowledge.

While telephones are present in about 60 per cent of the homes, and
while this may be a means of communicating with county agents and local leaders, it is believed that the telephone is not very important as a means of gaining information.

The Farm Bureau is apparently not too popular among the group surveyed by questionnaire. Although 11 per cent are members at present and about 6 per cent are former members, this association has not been too influential on this particular group studied. The reasons offered for discontinuing membership were "no value", "not practical", "not interested" and "fees not rated in equity". It cannot be said that the Farm Bureau is not justified and that it's purpose is not worthwhile, though this particular study does not show it.

An idea of the number of farm magazines used by this group can be gained from the table below.

Table 30
Farm Magazines Received

<table>
<thead>
<tr>
<th>Magazines</th>
<th>Number reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England Homestead</td>
<td>44</td>
</tr>
<tr>
<td>New England Poultry Magazine</td>
<td>22</td>
</tr>
<tr>
<td>Rural New Yorker</td>
<td>23</td>
</tr>
<tr>
<td>Country Gentleman</td>
<td>13</td>
</tr>
<tr>
<td>Farm Journal</td>
<td>11</td>
</tr>
<tr>
<td>Poultry Item</td>
<td>8</td>
</tr>
<tr>
<td>American Poultry Journal</td>
<td>6</td>
</tr>
<tr>
<td>Hoard's Dairyman</td>
<td>4</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>174</strong></td>
</tr>
</tbody>
</table>

Average 1.7 magazines per family.

Of the number reporting nearly everyone reported two or more magazines received weekly. With such publications in nearly every type of farming, there is little doubt but that the average farmer is influenced in many ways by this source of information. At least new ideas will be presented and the up-to-date farmer will make further inquiries concerning the same.
The farm magazines, then, speak for themselves for few farmers will subscribe to a magazine that does not offer something at least interesting if not always practical.

And while magazines reach out to a broad rural population, newspapers, daily and weekly, bring the question of community information nearer home. Nearly every paper has items of interest to farmers. Some county extension divisions use the newspaper as a medium of spreading information and announcements of various meetings that are to be held from time to time.

The number of farmers receiving newspapers is expressed in the following table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Number reporting</th>
<th>Average per family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>124</td>
<td>1.21</td>
</tr>
<tr>
<td>Weekly</td>
<td>69</td>
<td>.67</td>
</tr>
<tr>
<td>Farm</td>
<td>14</td>
<td>.13</td>
</tr>
</tbody>
</table>

Although many apparently do not receive Sunday papers, local daily papers reach practically everyone. Moreover, when farm and weekly papers are considered together, the average is nearly enough to give one weekly paper per family. In this survey many reported taking as many as four or five different papers, while a few reported as not taking any. The farm papers reported were "The Christian Herald", "Journal of Heredity", "Journal of Dairy Science", "Eastern States Cooperator", "New England Dairyman", and "Field Station Journal". The newspapers can be of great importance in effecting any general community in that the write-ups are a means of raising questions and to solve them requires the use of other sources of information. The library is one means of getting additional information desired and although most of the rural libraries are not very
complete they can generally offer some information on the subject or give adequate references and where such material can be found.

Of the 83 reporting in the questionnaire, 55.63 per cent reported the use of libraries for information. Surely when information is desired a library should be a major source of help. And with the group studied here who average about 3 miles from town, the library may offer a great deal of information. The extension service is probably more important than all of the others put together in offering practical information to the farmers and farm families in Massachusetts.

The figures in the following table do not speak too well for the activity of the extension service among this group. However, if one stops to consider what a large job the service has to do the following figures become very favorable.

Table 32
Participation in Extension Activities

<table>
<thead>
<tr>
<th>Group</th>
<th>Number reporting</th>
<th>Number favorable</th>
<th>Percentage of all reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers have extension activities on their own farms</td>
<td>62</td>
<td>23</td>
<td>45.16</td>
</tr>
<tr>
<td>Extension activities held in homes</td>
<td>59</td>
<td>17</td>
<td>23.31</td>
</tr>
<tr>
<td>Extension activities carried on in their school district</td>
<td>43</td>
<td>22</td>
<td>45.33</td>
</tr>
</tbody>
</table>

In the first place, the extension service cannot always go to the people; instead, the people must let the service know what is the trouble, then they may expect special help. A little less than one-half of the former correspondence students have taken advantage of the extension service offerings. Of those who did obtain help, the primary services offered were (a) on the farm - Poultry (9), Floriculture (3), Gardening (3), Dairy (3),
4-H Club Work (3), and general (7); (b) in the home - Canning (4), 4-H Club Work (4), Flowers (3), Sewing (3), Cooking (1); and general (2); (c) main extension activities in school district - 4-H Club Work (11), general (4), Poultry (3), Dairy (2), and Gardening (2). The reports, then, are varied and had accurate reports been given in every case, the effect of the extension service would seem greater.

Further consideration of the influences of the extension service will present a more favorable report. In answer to the question "What other members of your family are influenced by the extension service?", 59 reported and 35 of these reported one or more members of the family influenced, thus about 51 per cent were influenced beyond the correspondence student in his association with the extension service. The major influences reported were in poultry, gardening, fruit, cooking, sewing, attending meetings, 4-H club work, etc.

While about 61 per cent of the individuals report that the extension service influenced other members of their families, they also reported that 64 out of 92 receive extension service bulletins at the present time. This is about 70 per cent of the group. They received bulletins mostly in the fields of poultry (32), gardening (13), dairy (11), and general (25). This is an important means of receiving the latest information in the various fields.

As for the attitude of the students toward the extension service, four out of five were reported as favorable to the work. Eighteen per cent failed to give their opinions while no one was listed as actively opposed to the cooperative extension system. The following table points this out.
Table 33

Attitude Toward Extension Service

<table>
<thead>
<tr>
<th>Item</th>
<th>Number of students</th>
<th>Per cent of all students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports obtained</td>
<td>105</td>
<td>100.</td>
</tr>
<tr>
<td>Students reported favorable</td>
<td>36</td>
<td>72.91</td>
</tr>
<tr>
<td>Students reported indifferent</td>
<td>19</td>
<td>13.09</td>
</tr>
<tr>
<td>Students reported opposed</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

There is little doubt but that those who have had any assistance by the extension service, other than correspondence study, will report anything other than favorable. Those who have made use of general meetings, office calls, home and farm visits, etc., usually profit much more than those who have made use of bulletins, radio talks, circular letters, and even correspondence study. Agriculture is a field of study that can make use of visual instruction very readily and to very great advantage. A report on "the present means of gaining the latest information in your field doesn’t present the ideal situation, then, if personal help and direction is used as the best method of teaching in agriculture. The report sums up generally the present influences of the various former correspondence students. This is shown in the following table.

Table 34

Present Means of Latest Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Number reporting</th>
<th>Percentage of all reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulletins</td>
<td>23</td>
<td>40.</td>
</tr>
<tr>
<td>Magazines</td>
<td>17</td>
<td>24.25</td>
</tr>
<tr>
<td>Meetings</td>
<td>8</td>
<td>11.42</td>
</tr>
<tr>
<td>Papers</td>
<td>7</td>
<td>10.</td>
</tr>
<tr>
<td>Radio</td>
<td>6</td>
<td>8.57</td>
</tr>
<tr>
<td>Books</td>
<td>4</td>
<td>5.71</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.</td>
</tr>
</tbody>
</table>

If the above table is analyzed the possibilities of the influence of the extension service can be realized more readily. By the use of bulletins plus meetings plus radio, the figure becomes 60 per cent disregarding the
Figure 9

Distribution According to the Present Means of Getting Latest Information

- 40% for Bulletins
- 24.2% for Magazines
- 11.4% for Meetings
- 10% for Papers
- 3.5% for Radio
- 5.7% for Books
influences to be brought about by means of papers and magazines which, in most cases, goes ultimately back to the extension service and agricultural college faculties for any new information.

The writer has attempted to present the possible means of reaching rural and urban peoples with agricultural information and it appears that these possibilities are greater than ever before because of the ever-growing complexity and broadness of the extension service system. In the past, between the years 1926-1930 inclusive, about one-half of the correspondence students had not been influenced directly by extension service methods. Since 1926 the enrollment in correspondence courses has been dropping and since 1926 the Extension Service of Massachusetts has grown in every way to reach more people. The need for correspondence study, then, has been less if the extension service has become so much more efficient. The last few years have necessitated free help and it is during this time of depression that the Extension Service can be of great aid to the average farmer.

Correspondence courses at Massachusetts State College have been taken in most cases to satisfy a need or a desire that has not been taken care of by other sources. It is interesting to know, though, how the former correspondence students come to know about the courses offered in agriculture by correspondence at the Massachusetts State College.

The following table summarizes the situation very well.

Table 35

<table>
<thead>
<tr>
<th>How Correspondence Course Heard of</th>
<th>Number reported</th>
<th>Percentage of all reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inquired</td>
<td>26</td>
<td>23.83</td>
</tr>
<tr>
<td>Posters, papers, bulletins, etc.</td>
<td>23</td>
<td>25.55</td>
</tr>
<tr>
<td>Friend</td>
<td>16</td>
<td>17.77</td>
</tr>
<tr>
<td>County agent</td>
<td>2</td>
<td>11.11</td>
</tr>
<tr>
<td>4-H Club work</td>
<td>3</td>
<td>11.11</td>
</tr>
<tr>
<td>Hearsay</td>
<td>6</td>
<td>6.66</td>
</tr>
<tr>
<td>State Extension Courses</td>
<td>4</td>
<td>4.44</td>
</tr>
</tbody>
</table>
The possible inter-relationship of the various means and agencies must be kept in mind at all times, for an individual may have heard of the course offerings from several sources—but this is another problem that is not too important—as it is known that no special effort is made to advertise these courses throughout the state.

Had reliable objective data been reported on the number of major and minor improved practices made after taking correspondence course, the effectiveness of this type of instruction could be determined quite readily. No accurate reports were made on the questionnaire so that the writer's attempt has been of little avail in this particular respect. A few reported changes but the numbers are so few that further consideration of this topic is not worthwhile. A report will be given in the next chapter of what New York Agricultural College has done in tabulating results on this topic. It is probable that courses offered at Massachusetts State College by correspondence will not vary widely in influencing new practices from those offered at New York Agricultural College. Along with this same question goes another one asked in the writer's questionnaire, namely, "How long does it take you to realize the effect of improved practices?" The response received was small. Some reported "immediately" while others gave "one season", "one month", "one year", and a few gave from 3 to 6 years as the time needed to realize the effect of any changes made due to information received from the correspondence courses. Such does not prove anything except that some of the students realized how long it took to realize some of the improved practices they had made.

A very small number of students write to their instructors concerning problems that bother them. Of the 105 reports received, 16 wrote to their instructors, 40 did not, and 49 failed to answer the question. Some of the instructors have reported that of the few students who do write in with
questions, the time spent in answering them is much more than the time needed to correct several of the student's papers. The help received by the student, though, is probably the best that can be had by correspondence. The extension worker can improve upon this information only by means of demonstration, which, as has been said before, is of great aid to the average farmer.

Over 75 per cent reported as having helped others to improve methods and whether or not this figure is accurate, it stands to reason that the influence of the correspondence courses at the Massachusetts State College do extend to more people than the individual student and his immediate family. If a farmer finds a method or practice to be efficient he will generally take pride in helping someone else to make the same change in practice.

Seventy per cent reported as having told others in their community of the courses offered at Massachusetts State College. Perhaps the present enrollment is partly due to this form of "hearsay" information, but should this source be depended upon, the enrollment will, almost of necessity, be less each year in the future.

Not one of the students reported that a course was not worth the money invested in it, nor that there was a course that was not worthwhile. This statement in itself should justify the correspondence courses. Among the courses desired at present by the former students were poultry (12), floriculture (3), pomology (6), and dairy (2). Five reported that they "didn't know" what was offered now. So, about 30 per cent of the former students between the years 1926 and 1930 inclusive are willing and ready to take other correspondence courses should conditions permit the same. Lack of money is a big factor at present and is probably responsible for some of the decrease in enrollments in the past couple years.

There were but 5 out of 105 who have attended the Massachusetts State College, and all of these were in short courses.

About 95.71 per cent of the group reported as being still interested in
the field that the course covered, while the remaining 4.19 per cent had
found other interests. The great majority, then, have probably found some
benefit in the courses offered and have been successful enough to carry on
with the type of farm work in which they are mainly interested.

A few have taken correspondence courses elsewhere in the field of agricul-
ture. Among the courses taken were: (1) Vegetable gardening and truck
farming of the International Correspondence School; (2) Tree surgery from
the Davey Tree Expert Company (probably a private course); (3) Tanning
leather, Pennsylvania State; (4) Floriculture, Secklin, Mo., and others
received courses from New York Experiment Station and the American Farmers
School at St. Louis, Missouri. The influences promoted by these few courses
is not great, but it shows the possibilities of information from commercial
correspondence schools. When the number of other types of correspondence
courses taken is added to the above group, the figure isn't too unfavorable
for this group. The following table will present the results of "the
courses taken elsewhere" and in what field.

Table 36

<table>
<thead>
<tr>
<th>School</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Correspondence School</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td></td>
<td>Architecture</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td></td>
<td>Vegetable Growing</td>
</tr>
<tr>
<td></td>
<td>Truck Gardening</td>
</tr>
<tr>
<td>Massachusetts Department of University Extension</td>
<td>Electricity (2)</td>
</tr>
<tr>
<td></td>
<td>Carpentry</td>
</tr>
<tr>
<td></td>
<td>Shorthand</td>
</tr>
<tr>
<td></td>
<td>Radio</td>
</tr>
<tr>
<td></td>
<td>Typewriting (2)</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
</tr>
<tr>
<td></td>
<td>English (3)</td>
</tr>
<tr>
<td></td>
<td>Education</td>
</tr>
<tr>
<td>Alexander Hamilton Institute</td>
<td>German</td>
</tr>
<tr>
<td>LaSalle University</td>
<td>Business Administration</td>
</tr>
</tbody>
</table>
Pennsylvania State

Bookkeeping
Agriculture
Tanning Leather

American Farmers School, St. Louis Missouri
Also at American Correspondence School
New York Experiment Station
Secklin, Missouri
Chicago

Nearly 30 per cent of the group have taken correspondence courses elsewhere in some field of study as well as that of agriculture. Just this fact substantiates the surmise that the group influenced by Massachusetts State College correspondence courses are, in general, an industrious group of people.

From the summation of the data collected by means of the questionnaire, a typical correspondence student at Massachusetts State College can be made. The following questionnaire will present a fair picture of this student.
The Commonwealth of Massachusetts
Department of Education
Massachusetts Agricultural College

Amherst

The following questionnaire is being sent out to all who have taken one or more correspondence courses at Massachusetts State College in the years from 1926 to 1930 inclusive. The purpose is to gather reliable information regarding their scope and effectiveness. Please answer all the questions you can and return as soon as possible. The survey will not be of much value unless every questionnaire is returned. Your cooperation is solicited.

Return addressed stamped envelope is enclosed. For Department of Education.

Origin M. Mason

Town or City Westport
Acres in farm 43
Kind of roads Macadam
Distance from Town 3 miles
Years at farming 12
On present farm 9
Type of farm poultry
Scale of work:
Commercial yes
Private hobby
Hobby owner of farm yes
Tenant no
Nationality American
Age 42

Number in family
Adults 2
Children 2

Number in school (10-20 years old) 1

In college yes
Have a radio yes
Kind of program you preferred musical

Programs in your field:
Farm and Home Hour - Poultry Talks
Have a telephone yes
Member of Farm Bureau no
Ever been why discontinued

What farm magazines do you take Rural New Yorker, N.E. Poultryman, Poultry Item...

Newspapers received:
Daily one
Weekly one

Farm papers received none

Do you visit libraries for information yes

What extension activities have been conducted:
(1) on your farm Poultry
(2) in your home Clothing project

What main extension activity has been carried on in your school district 4-H club work

What other members of your family are influenced by the extension service wife and son
In what way does 4-H club work and canning?

Do you receive extension service bulletins? Yes

In what field do you work? Poultry, fruit

Attitude toward extension work: Favorable

Education: College: X High School: X

How did you hear about correspondence courses? A friend

Reasons for taking course: Hobby: Yes Keep abreast of the times: Yes Keep up habits of study: Yes Number of major changes made after taking course: Yes Minor changes: Yes

Present means of getting latest information in your field: Bulletins

Reasons for dropping a course: Lost interest: Yes Course too hard: No time to do it: Yes Found other interests: Yes

Other reasons: Yes

Are you still interested in the field that your course covered? Yes

Number of hours leisure you have each week: 18 How do you usually spend it? Reading

Any course you would like to take now: Poultry How long does it take you to realize the effect of improved practices: One season

Have you attended courses at Massachusetts State College? No Was the correspondence course worth the money invested in it? Yes What course was not worthwhile? Do you write to your instructor concerning problems that bother you? No Have you told others in your community of courses offered? Yes Have you helped others to improve methods? Yes Do you keep an accurate record of farm costs and profits? Yes

How near are you to the market for your products? 8.75 Have you taken any other correspondence courses offered elsewhere? No

Where? In what field?
CHAPTER VIII

A Comparison of the Status of Massachusetts State College with the Status of Other Universities and Colleges in the United States Offering Correspondence Courses in Agriculture

Although the primary purpose of this study was to obtain data regarding the group influenced by correspondence courses in agriculture at Massachusetts State College, and to evaluate the effectiveness of this method, the study was also planned to give a broad idea of first-hand information concerning agricultural correspondence as carried on at all other colleges in the United States. Complete data could not be obtained from all the colleges so that in some cases comparisons will be made with one or two colleges instead of the whole group from which only incomplete information was received.

The first topic to be considered is that of enrollments, primarily in the years 1926-1932 inclusive, which will be the means of pointing out the trends of correspondence courses in agriculture during those years. The following table gives some data on Massachusetts State College correspondence course enrollments during the years 1926-1932 inclusive.

Table 37

The Massachusetts State College Correspondence Course Data

<table>
<thead>
<tr>
<th>Item</th>
<th>1926</th>
<th>1927</th>
<th>1928</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number enrolled December 1</td>
<td>77</td>
<td>80</td>
<td>62</td>
<td>67</td>
<td>86</td>
<td>46</td>
</tr>
<tr>
<td>New Enrollments</td>
<td>120</td>
<td>38</td>
<td>113</td>
<td>96</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Total enrolled</td>
<td>197</td>
<td>168</td>
<td>175</td>
<td>163</td>
<td>134</td>
<td>98</td>
</tr>
<tr>
<td>Number completing course</td>
<td>41</td>
<td>37</td>
<td>57</td>
<td>38</td>
<td>33</td>
<td>15</td>
</tr>
<tr>
<td>No. discontinuing</td>
<td>76</td>
<td>69</td>
<td>51</td>
<td>39</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>Total number discontinued</td>
<td>117</td>
<td>106</td>
<td>103</td>
<td>77</td>
<td>88</td>
<td>75</td>
</tr>
<tr>
<td>Per cent receiving certificates</td>
<td>35.0</td>
<td>34.9</td>
<td>52.7</td>
<td>49.0</td>
<td>37.5</td>
<td>20.0</td>
</tr>
<tr>
<td>Number receiving lessons Nov. 30</td>
<td>54</td>
<td>29</td>
<td>39</td>
<td>34</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Number received all lessons</td>
<td>26</td>
<td>33</td>
<td>23</td>
<td>52</td>
<td>29</td>
<td>15</td>
</tr>
<tr>
<td>Total enrolled, November 30</td>
<td>30</td>
<td>62</td>
<td>67</td>
<td>86</td>
<td>46</td>
<td>23</td>
</tr>
</tbody>
</table>

The correspondence course enrollments by courses for the years 1926-1931 inclusive will be found in the following table.
Figure 11

The Trend of Enrollments in Correspondence Courses at the Massachusetts State College During the Years 1916 to 1922 Inclusive
Figure 12

Enrollments in Agricultural Correspondence Courses During the Years 1926-1931 Inclusive at the Massachusetts State College
The courses in poultry husbandry have declined mostly in enrollments each year while the floricultural courses manage to remain about the same every year. In 1927 some radical changes were made in the correspondence courses here at the college. Up until 1927 nothing had been done to bring the courses up to date, except the poultry courses, and 8 out of the 26 offered were completely out of date. After a good deal of consideration, it was decided to continue only with such courses which proved to be of sufficient demand to warrant the time of those who prepared the courses. As a result of this decision the following subjects were discontinued: Field Crops, Feeding Farm Animals, Producing and Handling Market Milk, Forestry, Beekeeping, Peach Growing, Grape Growing, Strawberry Growing, Home Vegetable Gardening, Home Food Preservation, and Marketing Farm Products. Whether dropping these courses have influenced the declining enrollment or not cannot be determined, but it is probable that these courses would have been in demand as much as are some of the courses offered at present.

A study of the enrollments at Ohio State University for agricultural correspondence courses presents data fairly representative of recent trends throughout the country. The agricultural correspondence course enrollments at Ohio State University are found in the table below.

Table 38
Massachusetts State College Correspondence Course Enrollments by Courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>1926</th>
<th>1927</th>
<th>1928</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm Management</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Soils and Soil Fertility</td>
<td>9</td>
<td>5</td>
<td>8</td>
<td>14</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Poultry Husbandry (complete and unit courses)</td>
<td>86</td>
<td>63</td>
<td>46</td>
<td>57</td>
<td>46</td>
<td>23</td>
</tr>
<tr>
<td>Apple Growing</td>
<td>12</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Home Flower Gardening</td>
<td>10</td>
<td>14</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Commercial Floriculture</td>
<td>9</td>
<td>11</td>
<td>8</td>
<td>11</td>
<td>13</td>
<td>8</td>
</tr>
</tbody>
</table>

A study of the enrollments at Ohio State University for agricultural correspondence courses presents data fairly representative of recent trends throughout the country. The agricultural correspondence course enrollments at Ohio State University are found in the table below.
Table 39

Agricultural Correspondence Course Enrollment at Ohio State University

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1926-27</td>
<td>945</td>
</tr>
<tr>
<td>1927-28</td>
<td>1,044</td>
</tr>
<tr>
<td>1928-29</td>
<td>800</td>
</tr>
<tr>
<td>1929-30</td>
<td>917</td>
</tr>
<tr>
<td>1930-31</td>
<td>773</td>
</tr>
<tr>
<td>1931-32</td>
<td>507</td>
</tr>
</tbody>
</table>

There appears to be a steadily declining enrollment each year at Ohio State University as at Massachusetts State College. Moreover, the major decrease is in poultry courses as is the case at the Massachusetts State College. Vegetable gardening is rapidly increasing in enrollments each year, though, while Small Grains has become more and more unpopular. Potato Growing manages to hold its own about every year as does Soil Fertility and Orchard Fruits. The courses offered at Ohio State include the following: (1) Soil Fertility; (2) Orchard Fruits; (3) Vegetable Gardening; (4) Corn Culture; (5) Alfalfa Culture; (6) Clover Culture; (7) Grasses; (8) Potato Growing; (9) Tobacco Growing; (10) Study of Trees; (11) Poultry Farming; (12) Sheep Farming; (13) Dairy Farming; (14) Beekeeping; (15) Farm Water Supply; (16) Concrete Work; (17) Farm Power; (18) Farm Lighting; (19) Farm Buildings; (20) Farm Accounts; (21) Swine Farming; (22) Small Fruits and Grapes; (23) Small Grains; (24) Newswriting.

George Gemmell, Director of the Home Study Service at the Kansas State College reports that, "So far as the correspondence courses in the agricultural field are concerned, there has been approximately the same demand for that work during the period you mention from 1926 to 1931. In my judgment the demand for this work is quite largely influenced by the activities of the State College in promoting that particular service. Our department has had practically all the enrollments that could be taken care of in a good way and we have done little in the way of advertising our work,"
preferring to let that come from satisfied students."

The correspondence courses offered in the division of agriculture of the Kansas State College are: Farm Crops, History of Breeds, Elements of Horticulture, Vegetable Gardening, Floriculture, Landscape Gardening, Small Fruits and Farm Poultry Production.

T. W. Thordorson, Director of Correspondence Courses at the North Dakota Agricultural College states that, "We have between four and five hundred active students on our rolls most of the time. Most of our students are from our own state although we have received enrollments from every state in the Union and some from foreign countries."

The enrollment trends of the Cornell Farm Study Courses at the New York State College of Agriculture is just the reciprocal of the tendencies at the Massachusetts State College. One must take into consideration that the courses at New York State College are free and that they are only available to the residents of New York. The following table gives the enrollments at New York State College for the years 1926 to 1931 inclusive.

### Table 40

<table>
<thead>
<tr>
<th>Enrollments - Cornell Farm Study Courses</th>
<th>1926</th>
<th>1927</th>
<th>1928</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
<th>1932</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number enrolled, July 1</td>
<td>367</td>
<td>1343</td>
<td>955</td>
<td>1122</td>
<td>911</td>
<td>1537</td>
<td></td>
</tr>
<tr>
<td>New</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2037</td>
<td>2997</td>
<td>2492</td>
<td>2577</td>
<td>3020</td>
<td>3860</td>
<td></td>
</tr>
</tbody>
</table>

The courses offered at New York State College of Agriculture cover a broad field of study on nearly every phase of agriculture. There are 31 courses in all offered by this institution. It would almost be expected that with such an elaborate offering of courses, all of which are free, an ever increasing enrollment would follow. New York has the Farm Bureau, a system taking the place of the Extension Service as found in Massachusetts.
While this organization attempts to carry out the program of the Extension Service, it requires membership for which there is a charge and, since members benefit primarily, many farmers who are not members, do not receive all of the information available in their fields. So, correspondence courses in agriculture can be very helpful for this particular group of New York farmers.

George S. Butts, Supervisor of the Farm Study Courses at New York State College writes, "In making a study of these courses it is necessary that you know that the courses entitled gas engines, junior farm mechanics, junior woodworking, and radio construction are given as 4-H club projects which accounts for the relatively high enrollment in these particular courses. These are correspondence courses in the sense that we send them the lessons and their reports are sent to the College for correction. The College specialists meet with the various groups several times during the year, however.

I believe you can make out the various abbreviations for the names of the courses from the announcement which I am sending you herewith.

The last three columns of the summaries pertain to actual results of the courses. We tabulate the changed practices reported as each student completes his course. These reports are far from complete for most students and furthermore we have no report of changed practices from persons who do not complete their courses. For this reason allowances should be made in interpreting these figures."

The following table is typical of the yearly records kept of the Cornell Farm Study Courses.
### Table 41
**Summary - Cornell Farm Study Courses**
**July 1, 1929 - June 30, 1930**

<table>
<thead>
<tr>
<th></th>
<th>Reports</th>
<th>Enrollments</th>
<th>Pract. Rep't'd.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Av. Per No.</td>
<td>7/1/29</td>
<td>3/31</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Farm Management I</td>
<td>552</td>
<td>46.0</td>
<td>40</td>
</tr>
<tr>
<td>Farm Management II</td>
<td>196</td>
<td>15.3</td>
<td>17</td>
</tr>
<tr>
<td>Farm Management III</td>
<td>15</td>
<td>1.2</td>
<td>4</td>
</tr>
<tr>
<td>Farm Management IV</td>
<td>76</td>
<td>6.3</td>
<td>13</td>
</tr>
<tr>
<td>Agri. Prices I</td>
<td>343</td>
<td>28.5</td>
<td>7</td>
</tr>
<tr>
<td>Agri. Prices II</td>
<td>16</td>
<td>1.3</td>
<td>2</td>
</tr>
<tr>
<td>Coop. Marketing</td>
<td>8</td>
<td>.6</td>
<td>3</td>
</tr>
<tr>
<td>Milk Marketing</td>
<td>2</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>P. M. D. Cows</td>
<td>427</td>
<td>35.5</td>
<td>37</td>
</tr>
<tr>
<td>Dairy Herd Improvement</td>
<td>170</td>
<td>14.1</td>
<td>10</td>
</tr>
<tr>
<td>Beef. C. &amp; Heifers</td>
<td>167</td>
<td>13.9</td>
<td>7</td>
</tr>
<tr>
<td>Sheep and Wool Products</td>
<td>197</td>
<td>16.4</td>
<td>15</td>
</tr>
<tr>
<td>Park Production</td>
<td>26</td>
<td>2.1</td>
<td>7</td>
</tr>
<tr>
<td>Beekeeping</td>
<td>99</td>
<td>8.2</td>
<td>10</td>
</tr>
<tr>
<td>Orchard Fruits</td>
<td>133</td>
<td>15.2</td>
<td>26</td>
</tr>
<tr>
<td>Small Fruits</td>
<td>77</td>
<td>6.4</td>
<td>11</td>
</tr>
<tr>
<td>Poultry Flock Management</td>
<td>1653</td>
<td>138.1</td>
<td>143</td>
</tr>
<tr>
<td>Chick Rearing</td>
<td>706</td>
<td>63.3</td>
<td>100</td>
</tr>
<tr>
<td>Poultry Breeding and Inc.</td>
<td>149</td>
<td>12.4</td>
<td>7</td>
</tr>
<tr>
<td>Mark. Poultry Products</td>
<td>35</td>
<td>2.9</td>
<td>7</td>
</tr>
<tr>
<td>Farm Mechanics</td>
<td>96</td>
<td>8.0</td>
<td>13</td>
</tr>
<tr>
<td>Soil Management</td>
<td>199</td>
<td>16.5</td>
<td>15</td>
</tr>
<tr>
<td>Market Gardening</td>
<td>165</td>
<td>13.7</td>
<td>25</td>
</tr>
<tr>
<td>Truck Crops</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Muck Crops</td>
<td>21</td>
<td>1.7</td>
<td>1</td>
</tr>
<tr>
<td>Home Gardening</td>
<td>142</td>
<td>11.8</td>
<td>14</td>
</tr>
<tr>
<td>Vegetable Forcing</td>
<td>31</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>Gas Engines</td>
<td>623</td>
<td>51.9</td>
<td>33</td>
</tr>
<tr>
<td>Junior Farm Mechanics</td>
<td>2065</td>
<td>172.0</td>
<td>343</td>
</tr>
<tr>
<td>Junior Woodworking</td>
<td>333</td>
<td>27.7</td>
<td>176</td>
</tr>
<tr>
<td>Radio Construction</td>
<td>32</td>
<td>2.6</td>
<td>29</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>3359</td>
<td>737.7</td>
<td>1122</td>
</tr>
</tbody>
</table>

*Completions*

The popular courses are Chick Rearing, Cows, Poultry Flock Management, Farm Mechanics and Farm Woodwork. The number of practices reported changed presents some objective data which the writer was unable to obtain in his survey through the questionnaire. And while this number is reported between 2 and 3, it shows up very readily that correspondence study in agriculture is not too effective in promoting improved practices. Method demonstrations,
meetings, and farm and home visits have been reported to be more effective than the use of bulletins, circular letters, or correspondence study methods. (35) The fact remains, however, that the correspondence method does promote some improved practices, and that it satisfies the need of a large group of people. The enrollment, in general, speaks for itself.

No report was received from the Pennsylvania State College as to enrollments in their correspondence courses during the years 1926-1930 inclusive. Some interesting information was offered however by Mr. Thomas I. Mairs, Director of Correspondence Courses, at Pennsylvania State. He says, "I may say that last year was the busiest year we have had since these courses started about 1900. Promises are that this year will be up to last, notwithstanding the fact that we reduced the number of circulars, and of announcements, sent out, radically, as well as the size of the circular." He goes on to say, "Poultry keeping is, decidedly, our most popular course. Approximately twenty to twenty-five per cent of the reports received are on this course. Part of this is due to the fact that this course contains more lessons than any other, but aside from that it is far the most popular. Other popular courses are: Vegetable Gardening, Home Floriculture, Farm Bookkeeping, Beekeeping, and Fertilizers and Farm Manures. The popularity of many of the courses seems to vary from year to year. A few years ago almost no one was taking the dairy courses. Then as the dairy farmers were next to the poultry keepers, the last to feel the depression, dairy interest increased.

"We have a number of students from Massachusetts enrolled in our courses, We have tried to find out why they ask to be enrolled in Pennsylvania courses rather than in those given in their own state, but they seem to ignore our question. We have frequently referred them to the Massachusetts State College
and Experiment Station for information involving soils, crops, and the relative profit of various branches of agriculture; questions depending more upon local conditions than on any general principles involved. We have, also, frequently referred them to their county agents, but we do not know to what extent they may have taken our advice.

"During the year 1931-32, we enrolled 2,457 new students, and received 19,343 reports. As the majority of students enrolled for two or more courses, the total enrollments, by courses of the 2,457 students, would be fully 5,000."

Since the courses were started in 1899, more than 42,000 students have been enrolled for this work. About 4,000 of these received instruction and submitted approximately 13,000 reports to the department during the past year.

Pennsylvania State, along with the New York State Agricultural College, the only two institutions of this kind in the United States, are important sources of agricultural information through the correspondence method. While the effectiveness of this work cannot be determined definitely, it is without question that much help is being given at present through correspondence work. Doubtlessly, free courses are especially attractive and since the courses cover such a wide field of agricultural subjects—nearly every interest in farming can be satisfied by either Pennsylvania State or New York State Agricultural College.

The enrollments of the University of Arizona in agricultural correspondence courses is almost negligible as the total number of students during the years 1926-1930 inclusive was but 53. Nothing can be determined from these figures. A table of the enrollments at the University of Arizona will be found on the page following.

Only about two-thirds of the courses offered have been made use of and even then only to a very small degree. Should the Massachusetts State College question the status of its correspondence courses as to validity, it would be quite well satisfied to continue if the University of Arizona was presented for a comparison in this respect.

Moreover, a comparison of Massachusetts State College correspondence courses with those of the University of Nebraska would show favorable tendencies for the Massachusetts State College. The registration of students in the correspondence courses at Nebraska will be shown in the following table.
Table 42

Registration in Agricultural Correspondence Courses at the University of Nebraska Between the Dates 1926 and 1931.

Agronomy 1-x--Soils--1 registration, he has not completed
Agronomy 109-x--3 registered and completed
Animal Husbandry 1-x--Types and Breeds of Livestock, 16
registered--10 completed
Animal Husbandry 4-x--Principles of Feeding--9 registered,
7 completed
Rural Economics 3-x--Farm Management--39 registered,
22 completed
Rural Economics 14-x--Elementary Agriculture--15 registered,
9 completed

The figures of the University of Nebraska are not important as only 83 students enrolled over a five year period. Of the group of five courses offered, Farm Management was the most popular.

The University of Wyoming has a very small enrollment in agricultural correspondence courses. Between 1926-1931 there were but 76 students in seven courses. The courses offered are: (1) Small Grains, (2) Forage Grains, (3) General Agriculture, (4) 6-2a--Breed History and Pedigrees, (5) C-6--Live Stock Management, (6) C-31--General Poultry, and (7) C-40 General Dairying.

While the subjects offered seem varied enough, the enrollment is very small, probably because the work is of college grade as is the case at the University of Arizona and the University of Nebraska, both of which had very small enrollments in these courses.

The Louisiana State University exhibits another example of agricultural correspondence courses that are of little value. Since 1925 but 35 students have taken any of these courses. The courses offered at this institution are: (1) Agricultural Education, (2) Agronomy (now discontinued), (3) Animal Industry, (4) Dairying, and (5) Poultry Husbandry.

Florida University has about 50 students enrolled each year in agricultural
correspondence courses all of which are of college grade.

While no data was available from the University of Idaho as to enrollments during the past few years, the courses offered can be given at this time. They are: (1) Irrigation Practice, (2) General Crop Production, (3) Animal Nutrition, (4) Swine Production, (5) Sheep Production, (6) Milk Production, (7) Elements of Horticulture, (8) Nature and Control of Plant Diseases, (9) Potato Diseases and Their Control, and (10) Practical Poultry Production.

The University of Georgia offers the following courses by correspondence:


The Universities and Colleges which have reported the dropping of all correspondence courses in Agriculture within the past five years are as follows:

1. University of Maryland
2. University of Maine
3. Oregon State Agricultural College
4. New Mexico College of Agricultural and Mechanical Arts

No reasons were given concerning why these courses were discontinued,
but it is probable that the lack of enrollment in the courses was the main reason for this action.

And now, to consider the University of California, much interesting information will be found. The enrollment trends seem nearly parallel with the trends of the Massachusetts State College correspondence courses as will be seen in the table of enrollments for the University of California.

Mr. H. M. Butterfield, Supervisor of Correspondence Courses at California University, writes "The University of California, College of Agriculture, started correspondence courses in agriculture late in 1913. These courses were free at that time but following the war it became necessary for us to pay part of the cost from fees required of students. A $2.00 fee was applied for each course in 1920. Previous to the time that the fee was applied enrollments were very heavy.

"In the early days of our correspondence courses the work was offered under the Division of Agricultural Education. This Division was discontinued a few years ago after which the work was transferred to the Agricultural Extension Division. Correspondence courses in agriculture are properly included under Agricultural Extension work, although the franking privilege is not permissible, due to the fact that a charge is made." The following table shows the total enrollments at the University of California during 1926-1932.

Table 43

Summary of Enrollments, University of California 1926-1932

<table>
<thead>
<tr>
<th>Year</th>
<th>Counties</th>
<th>States</th>
<th>Foreign</th>
<th>Students re-enrolled</th>
<th>Grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1926-27</td>
<td>1240</td>
<td>108</td>
<td>34</td>
<td>1382</td>
<td>1725</td>
</tr>
<tr>
<td>1927-28</td>
<td>794</td>
<td>112</td>
<td>14</td>
<td>920</td>
<td>1151</td>
</tr>
<tr>
<td>1928-29</td>
<td>843</td>
<td>98</td>
<td>35</td>
<td>976</td>
<td>1176</td>
</tr>
<tr>
<td>1929-30</td>
<td>804</td>
<td>99</td>
<td>23</td>
<td>926</td>
<td>1071</td>
</tr>
<tr>
<td>1930-31</td>
<td>702</td>
<td>83</td>
<td>20</td>
<td>805</td>
<td>954</td>
</tr>
<tr>
<td>1931-32</td>
<td>502</td>
<td>37</td>
<td>5</td>
<td>544</td>
<td>640</td>
</tr>
</tbody>
</table>

During the years 1926-30 inclusive the drop in enrollments was nearly
35 per cent and over a seven year period the decrease was over 60 per cent. At the Massachusetts State College over the five year period, the decline was over 32 per cent, and for a six year period (1926-1931 inclusive) it was a little less than 50 per cent. The general trends, though are approximately the same.


The most popular courses at the University of California have been those in poultry husbandry, alfalfa culture, dairy husbandry, swine husbandry, vegetable gardening and home floriculture.

The Director of Correspondence Courses, H. M. Butterfield, gives some important information on the current trends of correspondence courses at the
University of California. He writes, "It is the feeling of our present Director of Agricultural Extension that correspondence courses in agriculture were of considerable importance at one time but now should be replaced by printed manuals either in the form of Extension Circulars or other publications which may be sent out to those seeking information. These manuals can be kept and referred to very much like a correspondence course in agriculture. About four years ago we began to replace our correspondence courses in agriculture with these manuals. All of our correspondence courses on fruit raising with one exception have already been replaced. Certain of our other courses have also been discontinued for the same reason. The remaining courses which we now list will be discontinued just as soon as publications become available."

Would it not seem advisable that if, in the future, correspondence courses at Massachusetts State College continue to lose their popularity, that the system adopted by California University would be a successful one to use here at Massachusetts State College? If the courses cannot be advertised so that a maximum number of people can benefit from them, then it would appear that bulletins of the course materials would prove effective to a much larger number throughout the State.

From this discussion of the enrollments in agricultural correspondence courses, it can readily be seen that in general the enrollment trends at other universities and colleges is downward as is the case at Massachusetts State College. It can also be seen that some institutions carry on their correspondence courses though the enrollment is negligible. The Massachusetts State College is above average in the number of courses offered for correspondence in agricultural subjects for the group of colleges considered in this study.

Distribution According to Occupations: While it is not known just what the range of occupations may be for former correspondence students of the
Figure 13

Enrollments in Agricultural Correspondence Courses
During the Years 1926-1931 Inclusive

Cornell Farm Study Courses

University of California

Mass. State College
Figure 14

A Comparison of the Total Enrollments in Agricultural Correspondence Courses for the Years 1926-1931 Inclusive.
Massachusetts State College (1926-1930 inclusive) it may be fairly safe to say that most of the students are farmers. A few have reported as taking the courses for a hobby or other interests, but this number is small. The major group in this study were farmers on a commercial scale who were seeking additional information to help them carry on their work more efficiently and profitably.

Miss McCoy, Director of the Bureau of Non-Resident Instruction, at the University of Idaho, writes "Two groups are influenced by these courses: farmers who are seeking to improve methods of farming, together with a few persons who are interested in landscape gardening; and persons who hope to teach agriculture either in the Smith-Hughes work or some other phase."

From the University of Wyoming, Director J. R. MacNeil, of the Extension Division writes, "Most of those who take correspondence courses are teachers and a fairly large number of college students who need extra credits or who have to make up some subject, take work by correspondence. It is interesting, and perhaps amusing, the feminine school teachers comprise the majority of those who are taking the courses in agriculture, and the number of farmers who take such work is negligible."

The University of Arizona in its list of occupations of correspondence students enrolled during the years 1926-1932 has seven farmers listed out of the 2,390 who took courses during this six year period. Although 244 were listed as "not specified" as to occupation, there is no reason to believe that farmers would occupy more than their share of this number. The following table is a list of the occupations of correspondence students at the University of Arizona between the years 1926-1932.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountant</td>
<td>4</td>
</tr>
<tr>
<td>Advertising</td>
<td>1</td>
</tr>
</tbody>
</table>
Army Officer ............ 1
Artist .................... 1
Assayer .................. 1
Assessor .................. 3
Assistant Postmaster .... 1
Assistant County School Superintendent ........ 1
Athletic Director ........ 3
Attorney .................. 2
Aviator ................... 1
Bank Teller ............... 2
Bookkeeper ................ 7
Business Men ............. 5
Cafeteria Manager ........ 1
Carpenter ................ 4
Cataloger ................ 1
Cattleman ................ 1
Chauffeur ................ 1
Chemist ................... 5
Citrus Grower ............ 1
Clerk ..................... 46
Convalescent ............. 8
County School Superintendent ........ 1
Diamond Driller ........... 2
Dietitian ................ 2
Draftsman ................ 1
Electrician ............... 10
Engineer ................... 6
Farmer ..................... 7
Forest Service ............. 3
Government Employee .... 1
Housemaid ................. 1
Housewife ................. 221
Ice man ................... 1
Invalid ................... 4
Kindergarten .............. 1
Labor Commissioner ....... 1
Laborer ..................... 7
Lawyer ..................... 1
Librarian ................ 10
Mechanical Engineer ...... 3
Merchant ................... 7
Mill Operator .............. 1
Miner ...................... 7
Mining Engineer .......... 2
Minister .................. 2
Missionary ................ 3
Music Teacher ............. 8
None ..................... 13
Nurse ..................... 10
Office Assistant .......... 1
Plant Specialist .......... 3
Physician. .......... 1  
Pipe Fitter. ........ 1  
Plumber. .......... 1  
Postmaster. ........ 1  
Principal of School. .. 52  
Printer. .......... 1  
Professor. .......... 1  
Recreational Work. .... 1  
Radio Operator .......... 1  
Rancher. .......... 5  
Realtor. .......... 2  
Railroad Man .......... 2  
River Man. .......... 1  
Reporter. .......... 1  
Road Employee. .......... 1  
Salesman ........... 17  
Secretary. .......... 3  
Signal Man .......... 2  
Stenographer .......... 7  
Smelter Man .......... 2  
Social Worker .......... 2  
Statistician .......... 1  
Student. .......... 395  
Sub-teacher. .......... 14  
Superintendent of School. .... 19  
Surveyor .......... 2  
Teacher. .......... 1122  
Technician .......... 3  
Telegrapher .......... 3  
Timberman. .......... 1  
Time Keeper. .......... 1  
Tutor. .......... 3  
Vocational Guidancer .......... 1  
Waiter. .......... 1  
Waitress. .......... 1  
Workman. .......... 1  
Not specified. .......... 244  
Total .......... 2390

In any University Extension system, it can be expected that a distribution of occupations would be similar to the above table. Further consideration of enrollments by occupations for the years 1913-1932 at the University of California will give a more general picture of the situation and will set up some data worthy of discussion at this point. The following table shows the enrollment in correspondence courses by occupations at the University of California during the years 1913-1932 inclusive.
Table 45

Enrollments by Occupations 1913-1932 at the University of California

Men

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Enrollments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>15,333</td>
</tr>
<tr>
<td>Trades and Mechanics</td>
<td>8,719</td>
</tr>
<tr>
<td>Merchants</td>
<td>1,066</td>
</tr>
<tr>
<td>Professional</td>
<td>1,586</td>
</tr>
<tr>
<td>Teachers</td>
<td>705</td>
</tr>
<tr>
<td>Clerks, Stenographers, Salesmen</td>
<td>5,145</td>
</tr>
<tr>
<td>Brokers, Real Estate, Insurance</td>
<td>770</td>
</tr>
<tr>
<td>Engineers</td>
<td>1,073</td>
</tr>
<tr>
<td>Students</td>
<td>2,278</td>
</tr>
<tr>
<td>Occupation Unknown</td>
<td>4,525</td>
</tr>
<tr>
<td>Military</td>
<td>469</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41,669</strong></td>
</tr>
</tbody>
</table>

Women

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Enrollments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>1,190</td>
</tr>
<tr>
<td>Trades and Mechanics</td>
<td>271</td>
</tr>
<tr>
<td>Merchants</td>
<td>13</td>
</tr>
<tr>
<td>Professional</td>
<td>272</td>
</tr>
<tr>
<td>Teachers</td>
<td>772</td>
</tr>
<tr>
<td>Housewives</td>
<td>6,656</td>
</tr>
<tr>
<td>Clerks and Stenographers</td>
<td>1,381</td>
</tr>
<tr>
<td>Brokers, Real Estate, Insurance</td>
<td>23</td>
</tr>
<tr>
<td>Students</td>
<td>508</td>
</tr>
<tr>
<td>Occupation Unknown</td>
<td>1,717</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12,803</strong></td>
</tr>
</tbody>
</table>

While the University of Arizona, with its typical University Extension System, has as its leaders in correspondence work teachers, students, and housewives, the University of California finds its main support in this work from Farmers, tradesmen, housewives and clerks. The reasons for this are not hard to find. Arizona offers about six courses in agriculture along with the many other subjects of college grade. California whose correspondence system is run by the Extension Service, has over twenty courses offered in agriculture besides as many more printed manuals covering other fields. The comparison of occupations reported at these two institutions offers another distinction between University Extension courses and those offered for non-credit by the Extension Service.
A. M. Butterfield writes, "All of our courses in California with one or two exceptions have been on specific subjects and not general. Our demand has been for this sort of course. Our object is to reach the man on the farm who is unable to attend either the university or high school and also those people who expect to take up farming yet are unable to take systematic instruction at some university or some evening high school." He goes on to say, "Farmers or those who expect to engage in farming, have always made up the largest part of our correspondence course students in agriculture."

To bring the matter home, a survey of the occupations of Massachusetts State College correspondence students would be comparable, on a much smaller scale, to that obtained from California University. The large majority of former Massachusetts State College correspondence students considered in this survey were farmers.

Kansas State College reports through George Gemmell, in charge of Home Study Service, that "The heaviest demands here at the Kansas State College have been for educational courses which we offer, and practically all of them are for high school and college credit, go to rural people who are interested in college work or preparatory courses for college."

To get an opinion from the South, Director J. C. Woodlow, Division of General Extension at the University of Georgia, gives his opinion of the subject. He says "These courses, as you will observe, are offered right along with courses offered by correspondence through this Division also by the College of Education of the University and by Franklin College, the College of Arts and Sciences of the University. Their appeal is general in its nature, and they provide practical training and help to those engaged in learning a livelihood, as well as to those who seek credits toward college degrees. I would say that most of these courses go to the farmers in this
state, but they are open to everybody, and doubtless a number of those actually engaged in agriculture, animal husbandry, home economics, poultry husbandry, etc., find these courses helpful."

The University of Nebraska reports that teachers represent the largest group of correspondence students since they use these courses to obtain and renew certificates.

No information was available from the other colleges, but it is probable that Pennsylvania State and New York University are, perhaps, the greatest sources of information to farmers in the United States by the correspondence method. Since the enrollment in courses of these two institutions is free, it is little wonder that the number enrolled is so very large.

The University of California, the University of Georgia, the University of Idaho and the Massachusetts State College are, then, a great deal alike in the extent to which the correspondence courses reach the farmers of their respective States. The offerings in agriculture by correspondence at the University of Wyoming, University of Nebraska, University of Arizona and the Kansas State College are negligible in effecting farmers. This is probably due to the small number of courses offered in agriculture at these institutions. In most cases, however, the number is as great as the offerings at the Massachusetts State College.

The distribution of courses according to age has been considered in a former chapter. It might be of interest to note, however, that the average age of the women taking courses at the Massachusetts State College is less than 30, while that of the men is over 40. At the average university extension department it is the tendency that the distribution of women in each of the groups between 18 and 45 years of age is much more constant than the number of men in the same group. Furthermore, the percentage of women in
each group tends to increase with advancing years, while the percentage of men in each group correspondingly decreases. This is the case up to the age of 45. The tabulation, therefore, appears to indicate that among women of all ages the demand for correspondence courses is more evenly distributed than among men. Among men, interest and activity in correspondence work reaches its highest point between the ages of 22 and 25 but women very noticeably after the thirtieth year.

Such tendencies are the opposite from that is true at the Massachusetts State College for more men take courses after they are 30 or 35 than those taking them before. While in a University Extension system someone is taking a course for extra credit, at Massachusetts State College correspondence courses are for an additional source of information in the ever-changing field of Agriculture.

The discussion of age and correspondence work raises the question of sex distribution in these courses. In general, the proportion of men and women receiving correspondence study from an institution will in large part depend upon the subjects that are given. Obviously, few women would be interested in mechanical engineering. It has been pointed out that in subjects offered in which it may be supposed the interest of men and women is equal, the sexes are almost equally distributed. At the Massachusetts State College, however, there are but about 20 per cent of the enrollments by women and most of these are in the Home Flower Gardening Course. At California University the enrollments for 20 years showed 41,669 men and 12,803 women, which shows about 78 per cent of the courses taken by men and the remaining 22 per cent by women. Women are more interested in home economics courses and courses of some apparent cultural value than in agricultural correspondence courses.

The period commonly allowed for the completion of a course is from 6 to
12 months from the time for registration and depends upon the number of lessons in the course. Provision for extension of this time is made by several institutions. The time may be extended by paying a renewal fee of $2.00. If the course is not completed then, the student is dropped from the roll. The system at the Massachusetts State College is such that a student is allowed as much time as he wishes to complete the work with the result that some courses are extended over a period of years before finally being completed or definitely discontinued. The writer would suggest that any one course taken should be completed in one year--rather than allow the students to drift along as is now the case. If the course is to be effective it should be carried on systematically, and if later on information is desired, the lessons, textbook and papers can be referred to easily.

Most of the correspondence departments make an effort to insure regular and continuous work and to prevent students dropping from courses. The correspondence secretary of the University of Minnesota used the card here reproduced: (Form of Notice for Delinquent Student used by the University of Minnesota)

The University of Minnesota  
General Extension Division  
Minneapolis

Name_________________________ Date_________________
Address_________________________

This card is intended to remind you that you have sent no recitations in your course in_______________ since_______________. If you are having difficulty with the work, please state what it is. If your delay will continue for a longer period, write, giving the reason for it and stating when you can resume your studies. Regular work brings the best results.

Please reply either with a letter or a recitation.

Secretary, Correspondence Study.

The extension department of Massachusetts has an excellent system of letters for this purpose. At this time, the reply post card like the follow-
Dear Sir:

For several weeks no communication has been received from you. Occasionally letters are lost in the mails, and for this reason I am addressing this inquiry.

I hope you will send lessons as regularly as possible, since this will add greatly to the efficiency of your instruction. Please remember that this department wishes to assist you in every way possible.

Information is always appreciated as to the cause of delays affecting your work.

Yours faithfully,

James A. Moyer,
Director.

A follow up system as is used at most other correspondence departments would probably be very much worthwhile and would lower the mortality rate of the courses at the Massachusetts State College.

It has been pointed out that some correspondence students like to complete the courses so that a certificate may be obtained. The writer does not believe that this is an important reason for course completion at the Massachusetts State College. However, whether such is the case or not is another problem, but it would be well to consider some of the certificates or "honorary documents" that are given at various institutions for course completions.

Several institutions use small printed cards. The University of California offers a good example.
University of California  
College of Agriculture  
Division of Agricultural Extension  
Berkeley, California  

This certifies that.  

has completed the agricultural correspondence course in  

as described in the leaflet on Correspondence Courses offered by the College of Agriculture. No degree credit is given for this course.

E. M. Crocheron  
Director of Agricultural Extension  

By.  
Supervisor of Correspondence Courses

The University of Missouri offers another type of certificate:  

University of Missouri  
Extension Division  

This Certificate is full evidence that.  

has satisfactorily completed the correspondence course, as outlined by the University Extension, in.  

A permanent record of this work is on file in the general archives of the University.

Signed.  
President  

Instructor  

Date.  
Director, University Extension
The certificate used by Massachusetts State College is found below.

This Certifies That

has satisfactorily completed the Correspondence Course

in

offered by the MASSACHUSETTS STATE COLLEGE

Approved

Head of Department.

Signed

Supervisor of Correspondence Courses.

Director of the Extension Service.

Date.
In general, then, this chapter has pointed out the tendencies of agricultural correspondence course enrollments at Massachusetts State College and at other institutions throughout the country. A discussion of the occupations of correspondence students has pointed out the groups of people primarily interested in this type of correspondence course. Some attention has been given to a few follow up cards to delinquent students, and to "honorary documents" or certificates awarded for course completions. These topics have completed the writer's discussion of agricultural correspondence courses to the extent that adequate conclusions can be drawn at this time. The next chapter will be devoted to the conclusions of this study.
CHAPTER IX

CONCLUSIONS.

In conclusion it is emphasized that this survey is not intended to definitely solve problems, but to outline them; not to settle all questions, but to raise them for the consideration of the Massachusetts State College authorities in charge of the correspondence courses.

The trend of enrollments in correspondence courses at the Massachusetts State College since 1916 has been decidedly downward and since 1926 the number enrolling has been quite steadily decreasing. Such a tendency is typical of most institutions throughout the country who offer correspondence courses in agriculture. The Cornell Farm Study Courses and those offered at Pennsylvania State are the only exceptions of this case. The great improvement in the agricultural plan in late years, the development of the radio, and the unusual addition of bulletins and circulars that have come about seem to have filled the demand for some of the correspondence courses which have in the past been useful. Thus, a drop in the enrollments seem logical.

Decidedly opposite from the tendencies of agricultural correspondence courses is the trend of University Extension courses in vocational, commercial and cultural subjects. The enrollments in most University Extension organizations is increasing very rapidly.

While there are many good reasons for correspondence study and such can be justified readily, this form of adult education in the field of agriculture as used as an Extension Method is not very effective. Bulletins, demonstrations, meetings and exhibits are much more effective to the farming groups since they reach a greater number of people than does the correspondence method.
Lack of time to do the assignments and the dislike of writing lessons appear to be the main reasons for the high mortality in the courses at Massachusetts State College.

The following will be set forth briefly as the characteristics of the average correspondence student at the Massachusetts State College:

1. He is, as a rule, an adult, the average age being around 42, and the range extending from 20 to 80 years.

2. He has a fairly definite idea of what he wants. He is taking the course for a purpose. Such is generally to improve his efficiency in methods and to promote greater production in his farming.

3. He is an American who has had some farm experience and is now farming on a commercial scale.

4. He is at present influenced by papers, farm magazines, bulletins, radio, and Extension Service aids. Most of his family take part in Extension Service activities in one way or another.

5. He is ambitious to keep abreast of the times and, in general, he is accepting scientific methods of farming.

6. He is more practical; both from the standpoint of his purpose in taking the work, and from that of experience and general attitude, than is the resident student of agricultural subjects.

7. He is generally the owner of his farm which is of fair size (40 acres or over). His farm is located on improved roads.

8. He has benefited by taking the course and has helped others to improve their practices.

The Massachusetts State College compares very favorably with other institutions throughout the country in the number of courses offered, the number enrolled and the cost of instruction.
Dr. J. S. Noffsinger, Director of the National Home Study Council, Washington, D. C., writes "We are sorry to report that we have no knowledge of any study which has been made in the field of Agricultural Correspondence courses. This type of correspondence course has never been popular. We are not surprised to learn that there are few students enrolled for them in your Massachusetts State College organization." The writer feels, however, that the general opinion is that correspondence courses in agriculture were of considerable importance at one time, but at present are of less value to the farmer because so much help can be received from the Extension Service Organization and other outside influences.

Correspondence courses in agriculture, then, have probably served their greatest purpose and now they should be adapted to suit the needs of more people. If the courses are to continue, it is suggested:

1. That the courses should be advertised to let the people of Massachusetts know what is offered. Advertising would doubtless increase the enrollment since there is a large group not influenced by Extension methods today. Such is the case in urban and semi-urban communities where gardening and flower raising would be carried on as a hobby. Correspondence courses would offer valuable information to such a group.

2. That the courses and assignments should be arranged so that the student does not have to write too much. The correspondence student does not have too much spare time and while he is willing to read he does not like to write all of the time. After all, it is the object of the courses to give information rather than develop students of composition.

3. That comparatively short courses broken into a large number of
brief lessons would induce more students to complete the work and to register for new courses.

Dr. Klein in a survey pointed out that "University extension divisions have found that the safest general rule in preparing correspondence courses is to make the courses as short as is consistent with unity and the lessons not so long that the average student needs more than an hour or an hour and a half to master each lesson." (19)

4. That no student should be allowed more than a year to complete any one course.

5. That follow-up cards should be sent to individuals who do not send in lessons, or to those who have apparently discontinued the courses. The courses can only be improved by the use of opinions of those who have dropped the courses.

6. That some effort be made to carry on an experiment with the correspondence courses. That is, try to promote an advertising campaign. If no response is received, such is a check on the efficiency of the Extension Service of Massachusetts in satisfying the information desired in the field of Agriculture. Moreover, the returns received should be more indicative of the usefulness of the courses than this study can point out at this time.

If it seems advisable to drop the courses, it is suggested that the courses be replaced by printed manuals or bulletins as is being done at the University of California. A consideration of the finances involved in such a change as compared with the present cost of the correspondence courses to the Extension Service will present a fairer picture of the situation.

* It must be remembered, however, that although the enrollments are decreasing, there are many students who have found the correspondence courses
in agriculture very useful, and there is no reason to believe that there are not still many potential students for these courses.

The writer would therefore suggest again that the correspondence courses should be advertised to offer everyone in Massachusetts the benefit of these courses at the Massachusetts State College. Or, it is suggested that the courses should be dropped and replaced by printed bulletins or manuals. The greatest number should profit at the lowest possible cost.
Appendix A.
The following letter was sent by the writer to the Director of Correspondence Study at every university and college in the United States which was reported as offering correspondence courses in the field of Agriculture:

9 Phillips Street
Amherst, Mass.
March 8, 1933.

The Director of Correspondence Courses
The University of Wyoming
Laramie, Wyoming

Dear Sir:

At present I am collecting some material for my Master's Degree Thesis in the field of "The Current Status of the Massachusetts State College correspondence courses in the field of Agriculture." In order to have some comparative basis for judgment on this subject, I am inquiring as to the general status and trends of correspondence courses in agriculture at other colleges.

Should you happen to have any figures available as to the number and kinds of courses offered, enrollment in these courses, and trends during the years 1926-1931, I would thoroughly appreciate your consideration of my inquiry.

Have any investigations or surveys been made at your college as to the kind of group which the correspondence courses influence and the effectiveness of these courses on such a group? Do most of the courses go to farmers in your own State?

Thanking you for any information you may be able to offer me, I am

Very truly yours,

Donald M. Mason
We shall perhaps be able to help you more in your study of this course if we know something of your experience and plans. Will you, therefore, please answer the following questions?

1. Age

2. Are you a graduate of

   Grammar School____  High School____  College____
   (Please check)

3. What experience have you had that has given you some knowledge of this subject?
   Nature of Work   Time engaged in it

   
   
   
   

4. In what work are you now engaged? ______________________

   ______________________

5. How do you expect to use the knowledge gained from this course?

   ______________________

   ______________________

   ______________________

   ______________________

   ______________________

Name: ______________________

Address: ______________________
Appendix B.
The Old Method

A Reading Course in
COMMERCIAL FLORICULTURE

Massachusetts State College
Extension Service

Correspondence Course No. 11-C

Aim:
The aim of this course is to provide instruction for those persons who are unable to take courses at the college but who wish to obtain information concerning the subject of commercial floriculture. It is intended primarily for and will be of greatest benefit to those who are already engaged in floricultural work.

Guide to Study:
The material is presented in the form of a reading course, assignments being made in textbooks. After careful study of the assigned lesson the student is to answer the questions with information given in the text, which may also be supplemented with results obtained in practical experience. It is not expected that a person who completes the course will be a skilled grower. However, it is hoped that the course will be of value in broadening and supporting practical experience.

The textbooks used in the course are: "Greenhouses, Their Construction and Equipment" by Wright, and "Principles of Floriculture" by White.

Lesson No. 1
GREENHOUSES AND THEIR CONSTRUCTION

Assignment:
"Greenhouses, Their Construction and Equipment" Chapters I, II, and III
Questions

1. What six states lead in the production of flowers according to the census reports of 1920?

2. Describe the evolution of the greenhouse.

3. Name the three classes of greenhouses. How do they differ in construction and use?

4. Distinguish between a hothouse and a stovehouse.

5. Describe three kinds of sash beds.

6. What five points should be considered in locating a hotbed?

7. What are the advantages and disadvantages of the double-glass sash?

8. What is meant by lapped glass? Putted glass? Which is desirable for hotbed sash? Why?

9. How would you prepare a hotbed six feet wide and twenty-four feet long? What equipment would be desirable?

10. How is manure prepared for use in a hotbed?

11. What factors may cause poor heating qualities in manure?

12. For what purposes are cold frames used?

13. How is a storage pit prepared?

14. What is a gable roof sash bed?

15. How would you care for sash bed materials to keep them in good condition?

16. What points should be considered in selecting a location for a greenhouse?

17. What points should be considered in the arrangement of a group of greenhouses?

18. If you had $10,000 to invest in greenhouses, would you build one house or several small houses? Why?

19. What would be the pitch of a greenhouse roof in order to obtain the maximum amount of sunlight? Would this pitch be practical? Why?

20. What are the roof pitches most commonly used? Referring to the table on page 19 of the text, what would be the length of the rafter in a house 40 feet wide having a roof pitch of $26^{1/2}\degree$, $32\degree$, $35\degree$, $45\degree$?

Note to Student: When you send in the answers to the problems in these lessons, please include the figures used in solving them. This will enable the instructor to point out any mistakes made.
Aim:

It is the purpose of this lesson to teach the student an appreciation of the practical advantages of thrifty chickens and how they may be secured; what determines health and how it may be maintained.

Guide to Study:

In your study of this lesson, read this guide and the lesson discussion and references, keeping always in mind that you study to find out what is a thrifty or healthy chicken, why it is healthy, and how its health may be maintained.

Beginners' luck is proverbial. Often the beginner in poultry keeping is very successful. Is his success due to lack of experience? And is subsequent failure the result of experience? The beginner in poultry keeping usually starts with new buildings and new land; that is, land uncontaminated by long usage for poultry, and hence free from common poultry diseases such as intestinal worms and coccidiosis. Without adequate knowledge of these diseases and sanitary methods for their prevention, the poultry plant after a few years becomes contaminated, the stock less thrifty, and production is lessened. This explains in many instances the success of amateurs and the failure of the more experienced.

From a biological point of view, a well managed poultry plant starts over new each year; that is, each year clean pullets, clean because they have not been exposed to infection, are housed in clean laying houses, clean because they have been thoroughly cleansed not only of physical filth but also of living filth, germs, and bacteria by proper disinfection. In a sense, then, both stock and buildings are renewed each year.

Again, the beginner in poultry husbandry usually seeks a source of thrifty stock. As he reproduces for himself, the vitality is not always maintained because of a lack of ability to recognize constitutional vigor in selecting breeding stock. Furthermore, a desire to expand rapidly often prompts the use of birds for reproduction purposes which are not physically fit.

Reference:

M. A. C. Experiment Station Bulletin No. 53 - "Eradication of Pulmonary Disease in Massachusetts"
Problem or Case Method - continued

Professor Discussion

Brooding and Rearing Chickens

The poultryman’s most difficult problem is reproduction; the renewal each year of the flock, or a large portion of it, with healthy, well matured pullets. Almost any poultry keeper by following one of several well established systems of housing and feeding can secure a profitable egg yield from a flock of hens, providing they are reasonably healthy. The crucial test of skill as a poultryman is ability to reproduce the flock year after year without excessive mortality and with thrifty, rapidly grown pullets, for a serious setback in brooding or rearing often is later reflected in impaired health and lessened production.

All farm animals with the exception of poultry are brought forth alive and nourished during infancy by their dams. They have no problem of food contamination and artificial heat supply. Hence the rearing of most young animals is not the rather difficult problem which confronts the poultryman in incubating eggs and hovering and feeding chicks so far out of season and in such large numbers as are required in commercial poultry production.

The essential features in brooding and rearing chickens may be grouped, for convenience of discussion, under five heads as follows:

1. Thrifty Chicks and Sanitary Precautions
2. Brooder Houses, Hovers, and Equipment
3. Brooding, Feeding, and Training
4. The Growing Range and Its Management
5. Chicken Diseases; Their Prevention and Control

Thrifty Chicks

The parent stock and its condition of health and nutrition has much to do with viability of chicks. Too many chicks, especially those sold by large commercial hatcheries, come from inferior breeding stock; inferior from the standpoint of standard breeding and also inferior because a sufficiently rigid selection of breeders is not practiced on the many and diverse farms from which they draw supplies of hatching eggs.

Breeding hens are sensitive to their environment. The effect of damp, filthy, and poorly ventilated or lighted houses and of inadequate diet being reflected not only in egg production but also in hatching quality of eggs and viability of chicks. Breeding hens should have dry houses with access to direct sunlight (not sunlight filtered thru glass because ordinary glass removes the violet rays of light) and ought to have also a ration ample to maintain good body weight and supply necessary minerals and vitamins.
Breeding stock should also be free from Pullorum Disease (formerly known as Bacillary White Diarrhea). This scourge is caused by germs, salmonella, which some hens harbor in their blood and ovaries and which infect the eggs they lay as well as chicks coming in intimate contact with chicks hatched from these eggs. Freedom from Pullorum Disease may be ascertained by means of the agglutination test. This testing service is available to most New England poultry breeders thru their respective agricultural colleges. Only birds known to be free from infection should be used as breeders; known to be free because found non-reacting when tested or because secured from disease-free sources. Commercial poultrymen cannot afford to risk the purchase of chicks from any other source and the cautious man will not. Such chickens are not hard to get, for New England has hundreds of flocks properly identified and accredited free from Pullorum Disease.

Then again the process of hatching itself often affects vitality. Excessively high hatching temperatures subsequently prove disastrous to the chick, as also does chilling in shipment or while being removed from incubator to brooder.

Sanitation and Disease Prevention

The most important single factor in poultry sanitation and disease prevention is in the selection of a suitable plot of land for the location of the brooder houses. It is essential that the land should be clean; that is, free from intestinal worms, coccidiosis, and other contaminations which come from continued usage. It should be land upon which chickens have not been raised for two years, at least, and which has not had recent applications of manure. A luxuriant sod is greatly to be preferred. Good drainage about the houses is desirable and yet a portion of the rearing ground to be ideal should be low enough and sufficiently moist to maintain a sod and afford green feed as the season progresses. Shelter from strong winds is also desirable. For added protection and convenience of labor, brooder houses may be grouped for the early season and later distributed over a greater area. Not more than 500 pullets can be matured safely on each acre of land. A second brood of chicks cannot satisfactorily be raised in a season without moving the houses to clean locations. Before brooder houses are moved to the season’s rearing ground, they should be thoroughly cleansed and disinfected. This means not only the cleaning out of all dirt and physical filth, but also the destruction of biological filth by washing out and spraying to disinfect against contamination of the previous season. It is well to use two disinfectants. For the floors and lower walls the use of lye with boiling water and scrubbed in is very effective followed by a general spraying with a three per cent solution of standard disinfectant or some coal tar product such as cresol, crude carbolic acid, or any of the various "perms" and similar commercial preparations available on the market.
QUESTIONS

1. Which is of greater importance to poultrymen, skill in incubation or in brooding?

2. How will you secure thrifty chicks?

3. Why is Pullorum Disease a serious scourge?

4. Contrast the commercial hatchery and the local breeder having large incubator capacity as sources of baby chicks.

5. Propose one word that best describes how chickens are kept healthy.

LW
2-19-31
SOILS AND THEIR MOISTURE SUPPLY

Aim:

This lesson aims to set forth the importance of a suitable supply of moisture for growing crops and the ways in which different kinds of soil may be handled to provide the best possible moisture conditions.

Reference:

Miller's "The Soil and Its Management"
Chapter IV to page 145
Chapters V, VI, VII, VIII
Chapter XI to page 146

Lesson Discussion:

Q. I plan to grow a half acre of tomatoes. In what sort of land should I plant them?

Ans. Tomatoes need a warm and early location. They are a crop that cannot make good growth during cold weather or on cold soil. The earliest crops are grown on a light soil, sloping to the south and well drained. A south slope is warm because it gets the most direct sunlight. A well drained soil is warm because the evaporation is comparatively slight. Evaporation uses up a tremendous amount of heat and keeps wet soils always cold. Water is slower in heating than anything else in the world. The less water a soil contains, the earlier it will warm up in the spring.

Q. How does one recognize a light soil?

Ans. A light soil is one that is easy to work and that does not stick to the feet or tools. In such a soil the plow pulls easily. A light soil feels coarse grained and gritty when rubbed between the fingers. The soil grains are mainly sand, with very few of the finer silt and clay particles. Rain sinks in quickly between the coarse grains and seldom runs away over the surface. Light soils are seldom too wet to grow good crops, but may often be too dry. They are likely to need a good deal of manure and fertilizer, since fertility is easily washed or leached out of a coarse and open soil.

Q. What can be done to keep light soils from getting too dry?

Ans. After a rain the soil grains hold on their surfaces films of water which do not drain away but remain until either evaporated from the surface of the soil or taken up by plant roots. The small spaces between the soil grains hold small droplets of water. All fertile soils contain more or less of a dark colored spongy material which is the partly decayed remains of plant roots, sod, trash, manure, etc., that has become mixed with the soil.
This spongy material is called organic matter or humus and, like an ordinary sponge, can hold very many times more than its own weight of water.

The water held by the soil in these ways is called capillary water. It moves through the soil just as oil moves in the wick of a lamp and, if there is standing water near the surface, will rise from this as a reservoir.

However, in light soil standing water seldom lies near the surface and crops must depend on the rain water which the surface layers of the soil can soak up and hold from one rainstorm to the next. A soil well filled with humus, through plowing in sod, stubble, manure, etc., will be able to carry a crop for quite a while without rain.

If the soil grains are packed close together, the films of capillary water will pass from one to another and rise to the surface where the moisture will evaporate into the air. Covering the soil with a layer of straw, leaves, etc., forms a sort of blanket through which moisture cannot rise. Such a layer is called a mulch. Stirring or cultivating the surface of the soil forms a loose layer called a soil mulch which also helps to prevent the soil from drying out.

Q. I own ten acres of rather low land. It is heavy and sticky and stays wet for a long time after rains. What is the reason I can get no good crops from this field?

Ans. Heavy soils are made up mostly of very fine particles. The clay particles, which are finest of all, are perfectly smooth to the touch and very slippery when wet. Though silt particles are too coarse to be slippery, yet they are too small to be seen separately by the naked eye. Water moves slowly between these small soil particles and, in consequence, drainage of heavy soils is slow. Roots of crop plants need air as well as water. Where drainage is poor the air may be insufficient and, as before stated, a wet soil is always cold. Seeds are likely to rot when planted in wet cold soils, and growth of plants on such soils is always slow and poor.

Q. What can I do to drain the water out of this land?

Ans. If the water table is within 2 or 3 feet of the surface for much of the time during the growing season, tile drainage will be necessary to make conditions safe and prevent an occasional drowning of crops. Grass may do well on such land, but if the land is too wet even the grass will be crowded out by sedges and rushes.

On level land the lines of tile must be put in parallel to each other and from 50 to 100 feet apart. The heavier the soil, the closer the lines of tile must be, since water drains away more slowly as the soil becomes finer. On many fields which are slightly rolling a few lines of tile laid through the hollows will drain the field perfectly. A wet spot is often found on a hillside or at the foot of a slope where the drainage from higher levels is thrown to the surface by a layer of water tight subsoil. A line of tile around the upper side of such a wet spot will cut off the flow of seepage water before it comes to the surface.
Q. My pasture is rolling clay loam. It is never too wet, but it gullies badly from rains, and in a dry time it bakes as hard as concrete and the grass burns up. What can I do to improve it?

Ans. Clay land is injured by drought fully as much as sandy land. Rain runs off from clay soil and tears out gullies instead of soaking in. Though clay soil may hold a good deal of capillary water, the fine texture slows up its movement so much that plant roots cannot draw in the water as fast as needed.

By way of remedy, this pasture soil must be made more open and porous so that rain may soak in instead of running off, so that more water may be stored in the surface soil, and so that water may move more freely through the soil as needed by plant roots.

If this pasture can be broken up, considerable improvement is possible. Careful plowing when the soil is just moist enough will loosen and crumble it. Turning under a green manure crop of rye or buckwheat will help to fill the soil with spongy and fibrous organic matter. This will permit rain to soak in more quickly and plant roots to draw on the moisture supply more readily. Liming, though done mainly for the purpose of sweetening the soil, also has a powerful effect in removing the stickiness from clay and in enabling the plow to do better work in crumbling and pulverizing heavy soils.

Q. What use can be made of my muck swamp? I believe it can be drained easily.

Ans. Almost all muck must be drained before it can be used for any kind of crop. In a newly drained muck soil there may be a serious lack of the bacteria which are helpful to plant growth. Muck is formed where rushes and other swamp plants grow into and fill up some pond or lake. The water saves them from decay, since the bacteria that cause decay cannot live under water. Muck soils always occupy the lowest spots in any locality and suffer much from early frosts through the setting in of cold air.

If there is sufficient grade and a good outlet for a system of tile drains can be found, it should be possible to make muck land highly productive and valuable. Muck soils are among the easiest of all to work. They are often so loose as to require rolling and packing in order to make the seed bed firm enough. Since they are composed mainly of organic matter, their fertilizer needs are quite different from those of soils of mineral origin, as will be set forth in a later lesson.
QUESTIONS

The questions given below should be answered after a careful reading of this lesson and the chapters assigned for study.

1. (a) Describe the soil in which you are interested by its appropriate name, such as sandy loam, silt loam, clay loam, etc.
   (b) Do you consider it a light or a heavy soil? Why?
   (c) Is it a warm or a cold soil? Why?

2. (a) How was your soil formed?
   (b) How can one tell a glacial drift soil from an alluvial soil?
   (c) Which of the soils mentioned in (b) do you think would be easier to work?

3. The heaviest soil on the Massachusetts State College farm is a silt loam with a clay subsoil. Would you expect this to produce good crops of hay? Of potatoes? Give your reasons.

4. Your garden is ready for planting. You roll one half and rake the other. Which half will show a dry surface first? Which half will hold the most water in the soil? Explain.

5. Why do gardeners firm the soil carefully about the roots when transplanting?

6. In orchards located on the lighter soils harrowing among the trees is begun just as early as possible in the spring. Do you consider this good practice? Why?

7. During very dry weather corn leaves may roll up through lack of water on heavy as well as on light soils, while at the same time corn is growing well on soils of medium texture. How would you explain this?
Example of the Test Form Method

Instructions: Fill in each blank with the word or words which make the statement convey the truest possible meaning.

1. The primary data of introspection are________________________.

2. According to school of introspection, the purpose of all science is primarily one of _________, which includes__________ and proper__________.

3. In philosophical terminology, it may be said that the structuralists are concerned chiefly with the_________ and the functionalists with the__________.

4. Psychoanalysts maintain that "repressed ideas" are active in the________________________.

5. The "mastery" urge is emphasized by_______________.

6. For the behaviorist, the element of the nervous system is the________________________.

7. Four of Adler's defense mechanisms are_______:___________.

8. The unit of the nervous system is called a________________________.

9. According to Woodworth, the two major steps in observation are__________ and ____________.

10. The behaviorists accept associationism under the title of the________________________.

"A" contains a list of terms with a number assigned: "B" contains a list of terms of names preceded by parentheses. There is a meaningful relationship between every one of the first list and a certain term in the latter list. Insert the number of the related term within the parentheses of its related term below. There are five extra terms in the second list; they need not be used.

A. 1. Phi-phenomenon experiment.
   2. First experiment on conditioned reflex.
   3. "Psychology is the study of soul states".
   4. "The greatest motivating force in life is the sex urge".
   5. "The S-R formula is inadequate: it should read S-O-R".
   6. "Stimulus-error"
   7. Delayed reaction experiments
   8. Functional psychology.
   9. Evolutionary theory of color vision.
   10. Hormic psychology.
   11. Law of transposability of gestalten.
   12. Wurzburg laboratory.
   13. Act psychology.
   15. "...keep as calm under all circumstances as your nature permits".
B. ( ) Jung
( ) Aristotle
( ) Titchener
( ) Ladd-Franklin
( ) Pavlov
( ) Watson
( ) Kulpe
( ) McDougal
( ) Avenarius
( ) Kohler
( ) Woodworth
( ) Angell
( ) Hunter
( ) Helmholtz
( ) Wundt
( ) Weissman
( ) Galton
( ) Wertheimer
( ) Freud
( ) Eliot
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Approved by:

[Signatures]

Graduate Committee

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