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An evaluation technique in appraising certain community resources for conservation education in Stanislaus County

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College of the Pacific
Stockton, Calif.

AN EVALUATION TECHNIQUE IN APPRAISING CERTAIN
COMMUNITY RESOURCES FOR CONSERVATION
EDUCATION IN STANISLAUS COUNTY

A Thesis
Presented to
the Faculty of the School of Education
College of the Pacific

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Harold Clarence Francis
June 1955

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CHAPTER I

INTRODUCTION

The unwise exploiting of our natural resources for the past century is slowly bankrupting not only our own nation, but also many major countries of the world. In order to retain the bounteous wealth which is rapidly slipping from our grasp, we must exercise cautious management of our remaining basic capital--our natural resources. The interrelationship between our general economy, the welfare and support of our public schools, and the maintenance of our democratic way of life make it mandatory that we exert every effort toward "locking the barn door before the horse is gone." So critical is the situation that citizens are forming conservation groups in many of our areas in an effort to stem the tide.

What implications does this problem have for schools? Is there a need to develop an attitude of respect and concern for the future of our country in the millions of citizens of tomorrow? With accurate information, a clear understanding of the problem, and a drive to solve it, these future citizens can assure for themselves and their posterity a continuation of their economic and political stability.

Government agencies have provided capable leadership for many years, but individuals, groups, corporations, and others have failed in many instances to sense the gravity of the problem, and have been poor followers. It is high time school people established a widespread program of conservation education interrelated with every phase and every level of the curriculum in an attempt to insure that the generations guiding our future destiny may have the incentive and technical knowledge to develop and wisely use our remaining natural resources.

I. STATEMENT OF THE PROBLEM

(This study is concerned with how the school is to proceed in a program of conservation education) to bring about these desired changes. It is concerned, however, with only one link in the long chain of activities composing the total conservation education program--the development of a cooperative evaluation technique in appraising certain community agencies that can be used by the schools of Stanislaus County in teaching conservation of the resources most vital to the county; namely, soil and water. The study attempted to evaluate the agencies in terms of the accessibility and adaptability of their use to the school program.

II. DESCRIPTION OF THE STUDY

Wise use and perpetuation of the local soil and water resources is dependent largely on the attitude and actions of the general public making up each community. A definite challenge is then presented to the schools to develop wholesome attitudes and habits in tomorrow's public. To meet this challenge it is imperative that the schools use the very best educational methods to teach conservation.

Many writers have expounded on the philosophy of the value to the school of utilizing community resources in conservation education. However, in this study an attempt has been made to effect an additional contribution to good educational practices by developing an evaluation technique for appraising certain community agencies. Each agency considered has been described and evaluated on the basis of the importance of the agency to the school, as well as the value of the school to the agency.

Because the field of soil and water conservation is limited in scope, which in turn limits the number of experienced, qualified teachers who would be evaluating the agencies concerned with soil and water conservation, a statistical treatment of the evaluations has not been attempted.

The study has been conducted in terms only of the educational implications of the use of each agency. The administrative details and the public relations aspects have been omitted except as they have proven to have a direct influence on the educational outcome.

The remainder of the report will be devoted to developing the background, description, presentation, and evaluation of the study.

CHAPTER II

REVIEW OF THE LITERATURE

The literature which is pertinent to the problem of a procedure whereby the school could teach conservation more effectively divides itself into two phases. One phase is concerned with the importance given the school's use of community resources. The second phase deals with descriptions and evaluations by various educators and authors of specific uses of community resources in conservation education.

Chapter II also presents a brief review of literature pertaining to the relative merits of using appraisal methods in determining the value of using community resources.

I. LITERATURE ON THE DESIRABILITY OF USING COMMUNITY RESOURCES

An awareness of the value of the use of community agencies in conservation education is evident in the following comments by school administrators:

Schools should look about them to learn of other agencies that are concerned with conservation education --because many agencies are concerned. Cooperative participation in planning local and state conservation education programs is not uncommon. . . . Cooperation on the part of various community agencies in a program

of conservation education can help make it vital, realistic, and sensible. To obtain it, schools should take the initiative in bringing together the several agencies for a coordinate view of conservation education, if the agencies themselves have not already done so.

Indeed, schools that move into flexible scheduling and that use community resources in conservation education may pave the way for a broader acceptance of the dynamic role of education. Such schools find it easier to apply these same practices to intergroup education, wise consumership, citizenship, and a host of other problems.¹

If the school is to develop in children wholesome attitudes and habits in the wise use of natural resources, it must be far more than an agency for teaching children in the traditional subject matter areas. It must be an institution whose program and procedures allow for frequent observation of and participation in local community conservation activities. Renner develops this point of view in the following manner:

From the proper disposal of a lollypop wrapper to the relocation of a highway in order to restore a river bank, there is ample opportunity for participation in local conservation. All this serves to emphasize the important fact that the problems and remedial answers in conservation become real and take on substance only when they rest upon an adequate knowledge of, and contact with, basic natural resources. To accomplish this demands the wholehearted participation by those who teach elementary science and the social studies. It also demands motivated excursions, school yard

¹Conservation Education in American School, Twenty-Ninth Yearbook, American Association of School Administrators, 1951.

lessons, and field studies in order to provide the challenges and interests needed to carry the class over into the use of printed book materials. Obviously, a large program of out-of-school activity should be planned in order to achieve some measure of continuity between school and community.²

A school existing in isolation from the community is insulated from life and will find it difficult to conduct an enriched education program. The Educational Policies Commission extends this contention with the following remarks:

Many schools are literally insulated in their communities. They are pedagogic islands, cut off by channels of convention from the world which surrounds them, and the inhabitants of these islands rarely venture to cross these channels during school hours. To be sure, they read about the surrounding world in books, and they return to live on the mainland when school is out. Few schools, however, have built bridges over which people may freely pass back and forth between school and community.³

As a solution to the problem of school insulation from the community Olson⁴ suggests several educational bridges to connect the insular school with the mainland of life. He enumerates these "bridges" as documentary materials, audio-visual aids, resource visitors, interviews,

²George T. Renner, Conservation of National Resources (New York: John Wiley and Sons, Inc., 1942), p. 197.

³Edward G. Olson, School and Community (New York: Prentice Hall, Inc., 1945), Preface.

⁴Ibid., p. 41.

field trips, surveys, extended field studies, camping, service projects, and work experiences.

The use of each of these techniques is a vital factor in making classroom instruction meaningful to children. Classroom instruction is apt to be barren if it is devoid of contact and intercourse with outside sources of information and motivation. Olson concurs as he explains why his education "bridges" from the school to the community are important.

Ever more clearly it becomes apparent that school education must be projected out of the sheltered classroom and into a living community which is the child's primary scene of present and future activity. For education is inherently a social process and if it is to be realistic, vital, and therefore defensible in the modern democratic world, its curriculum program must be framed in terms of continuous, first hand acquaintance with significant aspects of physical, biological, and social environment.⁵

Wesley and Adams also emphasize the educational value of linking school instruction with out-of-school experiences. They state:

The local community has continuity with the past and connections with all the world, and includes all the hopes which inspire men everywhere. It has dignity and meaning. The teacher who cannot appreciate the community in which the school is located is overlooking a source of living power.⁶

⁵Ibid., p. 12.

⁶Edgar Bruce Wesley and Mary A. Adams, Teaching Social Studies in the Elementary School (Boston: D. C. Heath and Company, 1946), p. 261.

Each of the authors quoted indicates that the community is one of the child's most important environmental influences. They infer that educational procedures which neglect the value of this influence are in violation of the psychological law that individuals learn and interpret what they perceive in terms of their own experiences. Holdford also testifies to the value of experiences in the subsequent learning of children.

Children learn in terms of their experiences. They come to understand the world in which they live in terms of their contacts with it. The first contact is of course with the communities in which they live. It follows, therefore, that an understanding of the community, its institutions, activities, and customs is the fundamental point of departure for acquiring an understanding of the institutions and problems of other communities and nations.

Regardless of the type of curriculum organization, whether traditional subject matter, activity, or integrated subject matter, the immediate environment should be the first source of instructional materials. The proper and full use of the environment may be the major element in the curriculum, not merely the enrichment of logically arranged subject matter set forth in a formal course of study.⁷

The interrelationship and interdependence of the school and the community is often overlooked. Most of the foregoing authors have approached the discussion of the school and community from the standpoint of the value the

⁷Anne V. Holdford, "Newer Types of Instruction in Small Rural Schools," Yearbook of the Department of Rural Education, National Education Association (Washington, D.C.: National Education Association, 1938), p. 98.

school can obtain by tapping the resources of the community. The school can be a vital factor in community activities and betterment. This point of view is set forth by Draper in The Community School.

It is imperative that an educational program be regarded as inclusive of the community, state, and nation and that results be evaluated in terms of community betterment and social improvement as well as in terms of the growth and development of the pupils in the classroom. An improved education will be evidenced by an improved community, and an improved community will facilitate an improved educational program. The school and community are so intimately related that a change in one factor will produce changes in all others.⁸

The emphasis given the use of community resources in educational literature by prominent educators would indicate that this teaching technique is worthy of evaluating and utilizing in the conservation education program of the Stanislaus County Schools. Since most of the literature consists of listing resource agencies or discussing the theoretical value and the techniques of using them, this study attempts to explore an area in which very little has previously been attempted--that of developing a cooperative technique in appraising specific resource agencies in terms of their educational implications for schools.

⁸Samuel Everett (ed.), The Community School (New York: D. Appleton-Century Co., 1938), p. 378.

The use of appraisal methods is considered by Good, Barr, and Scates as an important way of determining the effect of certain characteristics upon human beings. They justify the use of appraisal methods as follows:

Appraisal is simply the procedure by which we secure and make overt these characteristically variable reactions. Whatever its scientific standing, we recognize that for certain purposes the index of human values may be more important than any number of physical measurements made perhaps with incredible accuracy and reliability.⁹

In order to obtain the reactions of experienced teachers pertaining to the value of the use of community resources, the appraisal method has been utilized.

II. LITERATURE ON CONSERVATION EDUCATION IN PUBLIC SCHOOLS

A search of the literature in the field of conservation education revealed several examples of teachers or authors evaluating the use of community resources. In each report the evaluation was incidental and expressed only in general terms. The evaluations were inadequate in reference to appraising the community agency used on the basis of carefully selected criteria.

⁹Carter V. Good, A. S. Barr, and Douglas E. Scates, The Methodology of Educational Research (New York: D. Appleton-Century Company, Inc., 1941), pp. 411, 412.

The first appraisals were made by Miss Margaret Neagle, teacher of the San Marcos School in Santa Barbara County. She reports as follows regarding excursions made by her class during the study of a unit on the conservation of natural resources:

Visit to the Forest Service Warehouse. This visit gave the children a broad picture of the extremely varied types of work carried on by the Forest Service We saw and examined many types of tools used in building roads, fighting fires, and planting trees. The children were amazed at the care taken of the tools, and noticed the orderly arrangement of the shops.

.

The children appreciated the sincere interest of the Forest Service men in the questions which the group asked. The men in the various departments gave the children the impression that they, as members of a school group, had the responsibility for further acquainting people with the meaning of the conservation of our resources.

Visit to the Lookout Station. This excursion gave the children an appreciation of the work of the lookout men. The use of complicated instruments in locating fires indicated the amount of real training necessary for work of this sort. The heavy responsibility of the lookout man was strongly realized when the children surveyed from the high tower the miles and miles of countryside whose safety was guaranteed by the vigilance of one person.

This excursion was invaluable from the standpoint of aesthetic appreciation. The road to the lookout is a scenic drive dotted with unusual types of vegetation and wild flowers. The children's reaction to this experience was expressed in their creative writing.

Visit to the Lompoc Soil Conservation Project. This was the most valuable excursion we had. It gave the children so many real experiences that they could

not help but understand what the problem of soil erosion means in farming areas. This phase of erosion is the one most important in Santa Barbara County. We saw huge farming fields made useless by canyons cut by water erosion. . . . Again and again we saw what uncurbed water can do to soil, and how the application of scientific knowledge and techniques can save the land for agricultural purposes.¹⁰

Another evaluation is reported by Olsen in describing an excursion taken by a Miss Warren's class as a part of an investigation of undulant fever. In appraising the outcome of the trip to the Dairy Products Company, he says:

She thought over the evaluative discussion, the data secured by analyzing the student reports, and from scoring the tests, and the anecdotal incidents noted. What individual strengths and weaknesses were disclosed? What personal interests were evident? What had the class as a whole accomplished, and what further achievements were noted? . . . She concluded that in terms of its varied goals, this particular excursion had been successful, and was therefore as practical a use of class time as could have been made under the circumstances.¹¹

The Yearbooks of the department of rural education describe several school situations in which community agencies are used in their program of conservation education. Two of the most significant reports in the 1943

¹⁰Santa Barbara County Units of Study for Elementary Teachers (Santa Barbara: The Schauer Printing Studio, Inc., 1940), pp. 334-35.

¹¹Olsen, op. cit., p. 324.

Yearbook¹² are included here. Charles F. Martin describes one situation in his article, "We Help Our Community Conserve":

One and two-room schools of Jackson County, Iowa, for five years have made conservation of the natural resources of the community a part of their annual program. This article discusses the conservation of wildlife in the county

Many community resources were utilized. Patches of undergrowth, uncut fence rows, and other uncultivated tracts adjacent to the schoolyard provide a laboratory unique in the science of education

While the above summary indicates quite definitely and specifically community participation in this type of school program by showing the number of feeders and stations maintained at home, number of trees and conservation packets planted, and the number of feed-lot plantings of hegari, it does not indicate some of the more significant and far-reaching results. The social development of the child, experience in real citizenship, better school work resulting from the stimulation that comes with the correlation of conservation with the common branches, and a more thorough understanding of the economical and vocational significance of conservation in relationship to agriculture are some of the more basic outcomes.¹³

Julia B. Tappan and Anne Raymond describe another rural situation where the community was used in their article, "Young Southwestern Conservationists":

A school in Colorado near the Indian ruins of Mesa Verde used the life of yesterday for the lessons of today.

¹²Effie G. Bathurst (ed.), "Conservation Education in Rural Schools," 1943 Yearbook of Department of Rural Education of the National Education Association (Washington, D.C.: National Education Association, 1943).

¹³Ibid., pp. 40-44.

History of the Land

A big arroyo went across the field just below the village site. We all went down to look at it. It was estimated that it was about seventy-five feet across and sixty feet deep. One of the fathers told us that it extended across the country for a mile.

We raised the question, 'Was the arroyo here when the Basket Makers lived here?'

A father told us that when he was a boy in 1908 the gully had been about two feet deep and he could step across it any place. Another volunteered that his uncle had been a 'cowman' on the range in the early days and that at that time the arroyo had been a cow path

An understanding of some of the maladjustments arising from poor use of resources--forest gutted, grasslands misused, farmland improperly planned and used, mines wastefully developed, streams polluted, wildlife destroyed--can be given to all pupils by observation.¹⁴

Helen Heffernan in her article, "Newer Types of Instruction in the Social Studies," in the 1938 Yearbook describes a soil conservation unit where many different kinds of community resources were utilized:

A soil conservation unit--A four-teacher rural school was located in an area where a federal soil conservation project was under way. Discussion and comparisons made in the classroom relative to the decline of Spain, China, and Italy due to deforestation and soil erosion made the children curious as to the seriousness of soil erosion in their own area.

Committees planned a study of erosion

A government engineer and a farm adviser were invited to come to the school and talk with the children

¹⁴Ibid., pp. 50-60.

about the conditions in their own area. Excursions were planned under the supervision of these officials.

. . .

The children experimented with erosion in their own school yard, collected various kinds of soil found in the community and tested them for porosity and capillary rise of water. They studied relief maps. . . . They enlisted the help and interest of the entire community in their study of conservation. The increased understanding of the purposes and values of the federal project which resulted from the school work led to changed attitudes on the part of some families and better community cooperation in assisting with the project.

In the development of this curriculum unit the children came to some understanding of the economic and social issues involved in the problem of soil conservation through first-hand observation and experiment, and through a study of the results of lack of erosion control in other countries and in certain areas in our own. They learned something of the services of the federal government, the interdependence in nature, the need of specific knowledge of the part of farmers, and they understood their own community better.¹⁵

An article in the 1939 Yearbook, "The Use of Community Resources in Curriculum Development," by Annie M. Cherry and Lillian Minor, gives a more complete evaluation of the outcomes of the experiences of a school class with community resources.

. . . The work carried forward in Ada E. Valentine's classroom in a village consolidated school at Spring Hope, North Carolina, is a striking example of how community materials may function in promoting desirable child growth

¹⁵Kate V. Wofford (ed.), "Newer Types of Instruction in Small Rural Schools," 1938 Yearbook of the Department of Rural Education, National Education Association (Washington, D.C.: National Education Association, 1938), pp. 65-6.

In order to awaken scientific interest in their surroundings and to develop an increasing awareness of the esthetic values involved, excursions that give opportunity for close observation and discussions are participated in by the children to advantage. . . . As an outgrowth of such an educative experience, the development of a most creditable museum, an aquarium, a forestry study, and other varied activities has been stimulated

Furthermore, the children are made aware of social changes and social participation in society about them, by enlarging the school environment to include the neighborhood and by projecting the enterprises of the classroom into the broader area. Even the smallest children are led to understand increasingly the importance of the various aspects of community living and of their personal responsibility and relationship to the individual members participating. In this way, the experiences are not limited to a study of the various agencies involved but are broadened to include an appreciation of the activity itself and the corresponding interrelationships.¹⁶

Many school systems have published lists of resource agencies which would be useful to teachers in the general education program. A similar survey of the community resources available to schools in Stanislaus County was made in September, 1948.¹⁷ There were seventy-six agencies reported in the original compilation; however, approximately twenty-five others have been added since 1948. Many of these agencies have value for conservation

¹⁶Kate V. Wofford (ed.), "Community Resources in Rural Schools," 1939 Yearbook of the Department of Rural Education, National Education Association (Washington, D.C.: National Education Association, 1939), pp. 60-61.

¹⁷The bulletin is available from the Office of the County Superintendent of Schools, Modesto, California.

education. A one-page sheet for each agency gives the information necessary for a teacher to make use of the agency. The information given for each agency includes the name, address, manager, description, and the services available. The bulletin makes no attempt to evaluate the agencies. Its sole purpose is to inform teachers of the agencies available and to give pertinent information about each agency.

These representative reports indirectly and partially evaluate the resource agencies utilized by the schools. The nature of the reports indicate that a considerable amount of investigating needs to be done in the field of evaluating community resources in terms of their value in the school's conservation education program.

CHAPTER III

DESCRIPTION OF STANISLAUS COUNTY FROM THE STANDPOINT OF THE DEVELOPMENT AND UTILIZATION OF SOIL AND WATER RESOURCES

I. HISTORY OF STANISLAUS COUNTY¹

Stanislaus County is in the geographical center of the Great Central Valley of California, and is about ninety miles northwest of the geographical center of the State of California. Its history is the same as the rest of the Great Valley which was once under an arm of the Pacific Ocean. The valley itself was formed as a result of a series of mighty upheavals forcing up from the ocean bed the present coast and Sierra Nevada ranges of mountains leaving the Great Valley inundated with salt water. The county's heritage of rich soil is a remnant of countless floods of silt-laden waters pouring down for hundreds of years from the mountains to the east and to the west. A soil map of the county at present reveals the pattern in

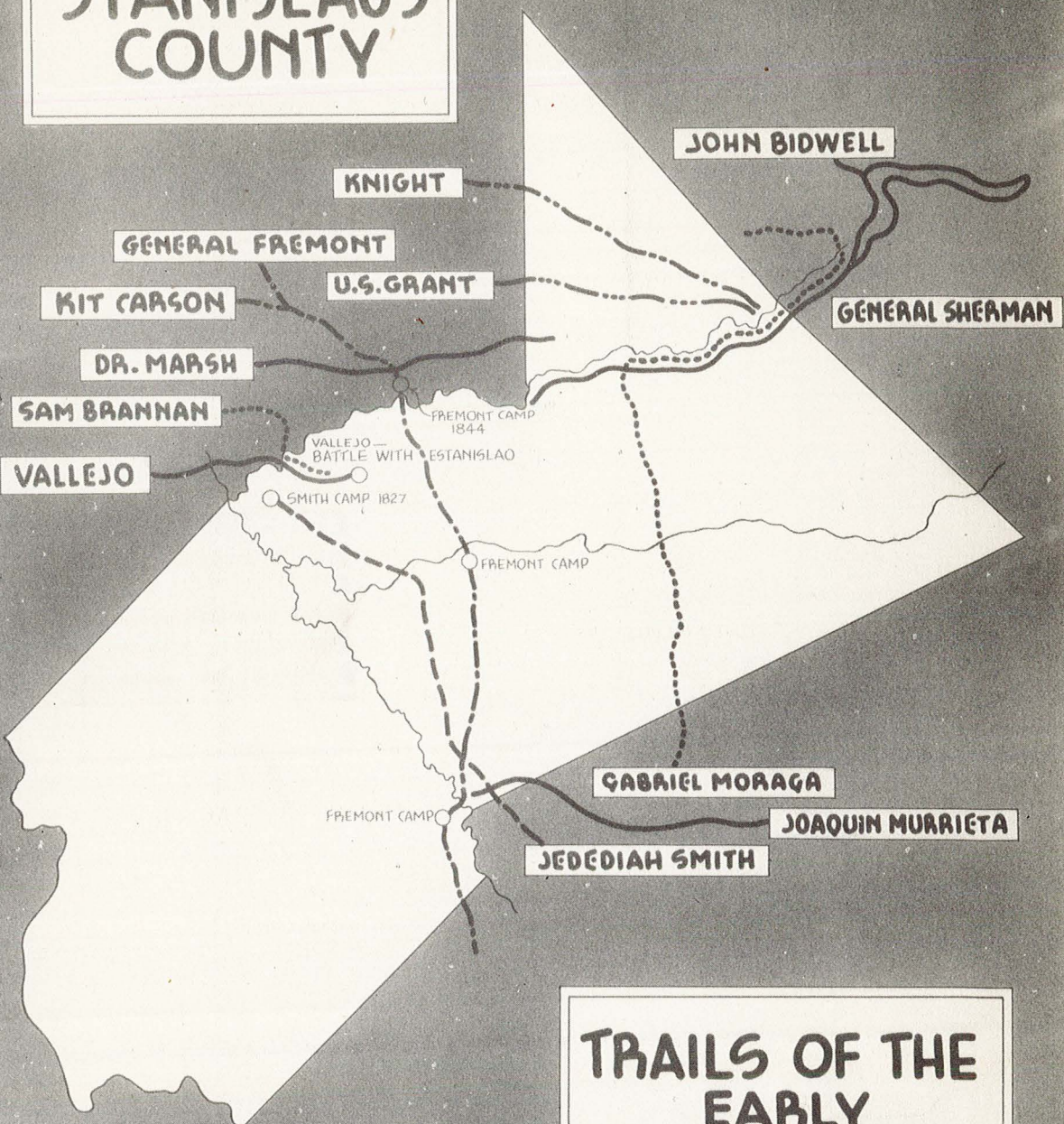
¹Geology and Ground Water Hydrology of the Mokolumne Area, California. Geological Survey Water Supply Paper 780 (Washington, D.C.: United States Department of the Interior), pp. 27-29; Geologic Guidebook of the San Francisco Bay Counties, Bulletin 154 (San Francisco: California State Department of Natural Resources, 1951), pp. 102-106; and Stanislaus County--A Source Book for Secondary Schools, published by the Office of County Superintendent of Schools, Modesto, California, 1950.

which this deposition took place as each of the rivers and creeks overflowed its banks, relieving itself of rich deposits of soil of various kinds as the waters slowed and receded. The alluvial fans of many of these streams are still perceptible. As a result of the deluge of fresh water and the transfer of millions of tons of soil from the mountains to the lowlands, the inland sea was gradually changed to a huge lake which in turn steadily receded in favor of a carpet of fertile soil.

From 1829 until 1850, when mining gave the initial impetus for accelerated settlement, the county was visited by several explorers and was inhabited by only a few trappers in addition to the native Indians. The trails of the explorations of such famous early pioneers as John C. Fremont, Kit Carson, Jedediah Smith, and John Bidwell are indicated in Plate 1. The Mexicans took up grants of land along the banks of the San Joaquin and Stanislaus Rivers, as indicated by Plate 2, page 22, but the Indians harassed the settlers so much that they were unable to graze cattle or live on their land from time to time.

The discovery of gold in 1848, the admission of California to the Union in 1850, and the decision in 1853 by Congress to permit citizens to settle unsurveyed lands at \$1.25 per acre were the factors which contributed to the rapid development of the Stanislaus area and to the

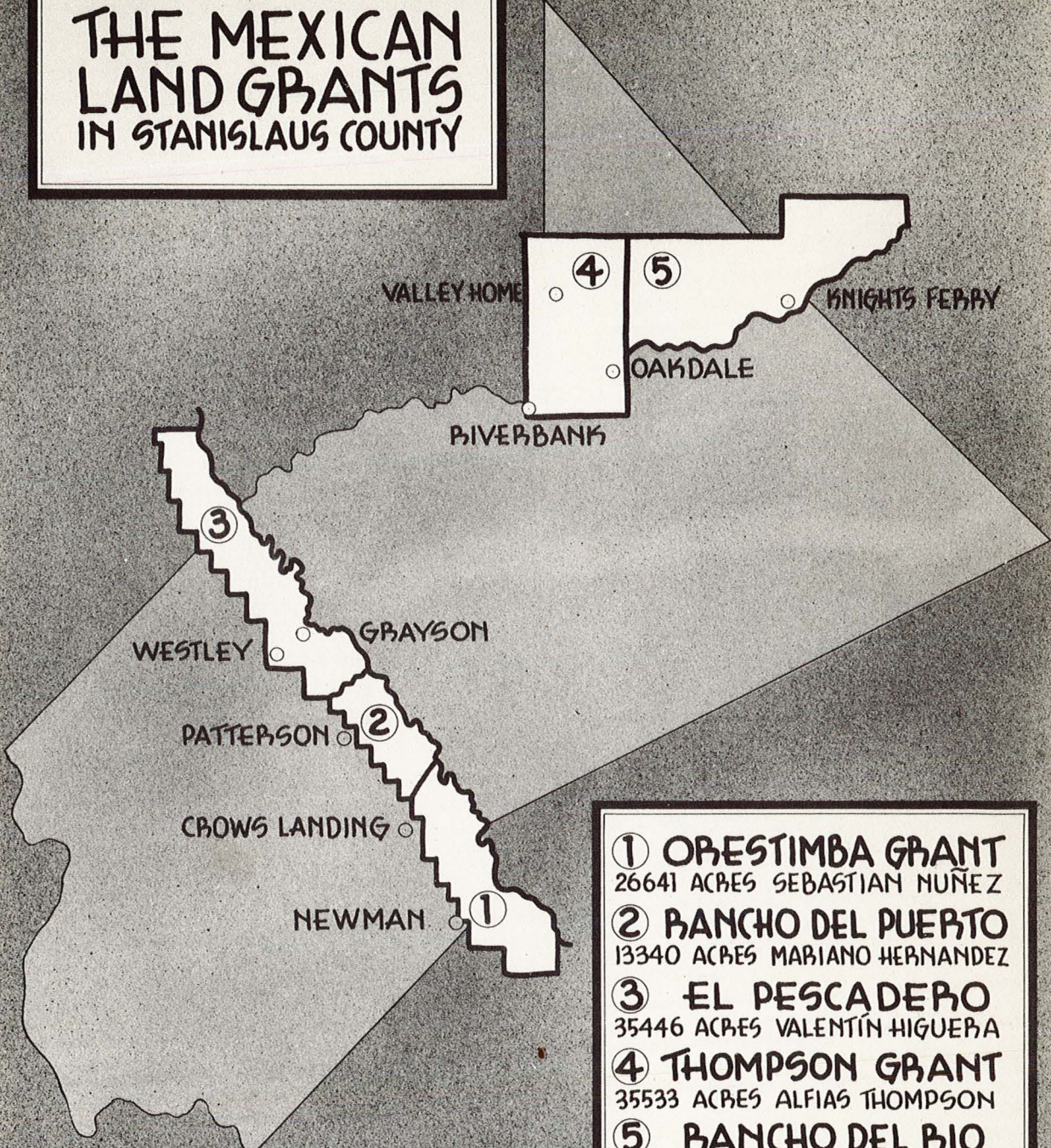
STANISLAUS COUNTY



TRAILS OF THE EARLY EXPLORERS

PLATE 1

THE MEXICAN LAND GRANTS IN STANISLAUS COUNTY



- ① **ORESTIMBA GRANT**
26641 ACRES SEBASTIAN NUÑEZ
- ② **RANCHO DEL PUERTO**
13340 ACRES MARIANO HERNANDEZ
- ③ **EL PESCADERO**
35446 ACRES VALENTÍN HIGUERA
- ④ **THOMPSON GRANT**
35533 ACRES ALFAS THOMPSON
- ⑤ **RANCHO DEL RIO ESTANISLAO**
48886 ACRES JOSE CASTRO AND FRANCISCO PICA

eventual dispersion of the Indians from the valley. Miners by the thousands settled at and near La Grange and Knights Ferry. Men came from the east to take up large holdings of land at such a cheap price. The fertile land yielded rich crops of wheat without the present-day levelling and irrigation.

II. DEVELOPMENT OF WATER RESOURCES²

Stanislaus County was established in 1854. A few of the pioneer farmers realized that this fertile area would never be brought to full production until water for irrigating the land during the long, dry season was brought from the mountains. These few foresaw that the bumper crops of wheat they had been gleaning from the soil would soon end unless they were allowed to plant other crops which required water. The first project of this nature was begun as early as 1871 by Miller and Lux, who at that time held most of the land along the length of the San Joaquin River. By 1879 canals were completed so that water taken from the San Joaquin River at Mendota irrigated lands along

²Mrs. Margaret L. Annear, Stanislaus County, a Source Book for Secondary Schools, 1950; Sol P. Elias, Stories of Stanislaus, Modesto, 1924; George H. Tinkham, History of Stanislaus County (Los Angeles: Historic Record Co., 1921).

the west side of Fresno County, Merced County, and Stanislaus County as far north as Crows Landing. This effort increased the yield of the fertile west side lands to the extent that it inspired the farmers of the east side of Stanislaus County, then called Paradise Valley, to attempt to bring life-giving water to their dry lands. They investigated the possibility of diverting water from the Tuolumne River near La Grange, at the Wheaton Dam, constructed in 1855 to impound water for hydraulic mining. Mr. Wheaton, the owner of the dam, was cooperative, but the majority of landowners were fearful of possible excessive costs, fraud, and failure of the project, so the matter was dropped for several years. Several other attempts to form independent irrigation districts and to pass favorable legislation failed. Finally, in March 1887 the legislature passed the Wright Act which provided for the establishment of the Modesto and Turlock Irrigation Districts as corporations to be governed by the landowners and their elected officials. However, it was not until 1903 that the districts had built La Grange Dam, had completed main and lateral canals and had subdued organized opposition so that water could actually flow onto the land.

At a later date the people of the Oakdale, Waterford, and Patterson-Vernalis areas of the county organized

similar districts and put their lands under irrigation.³

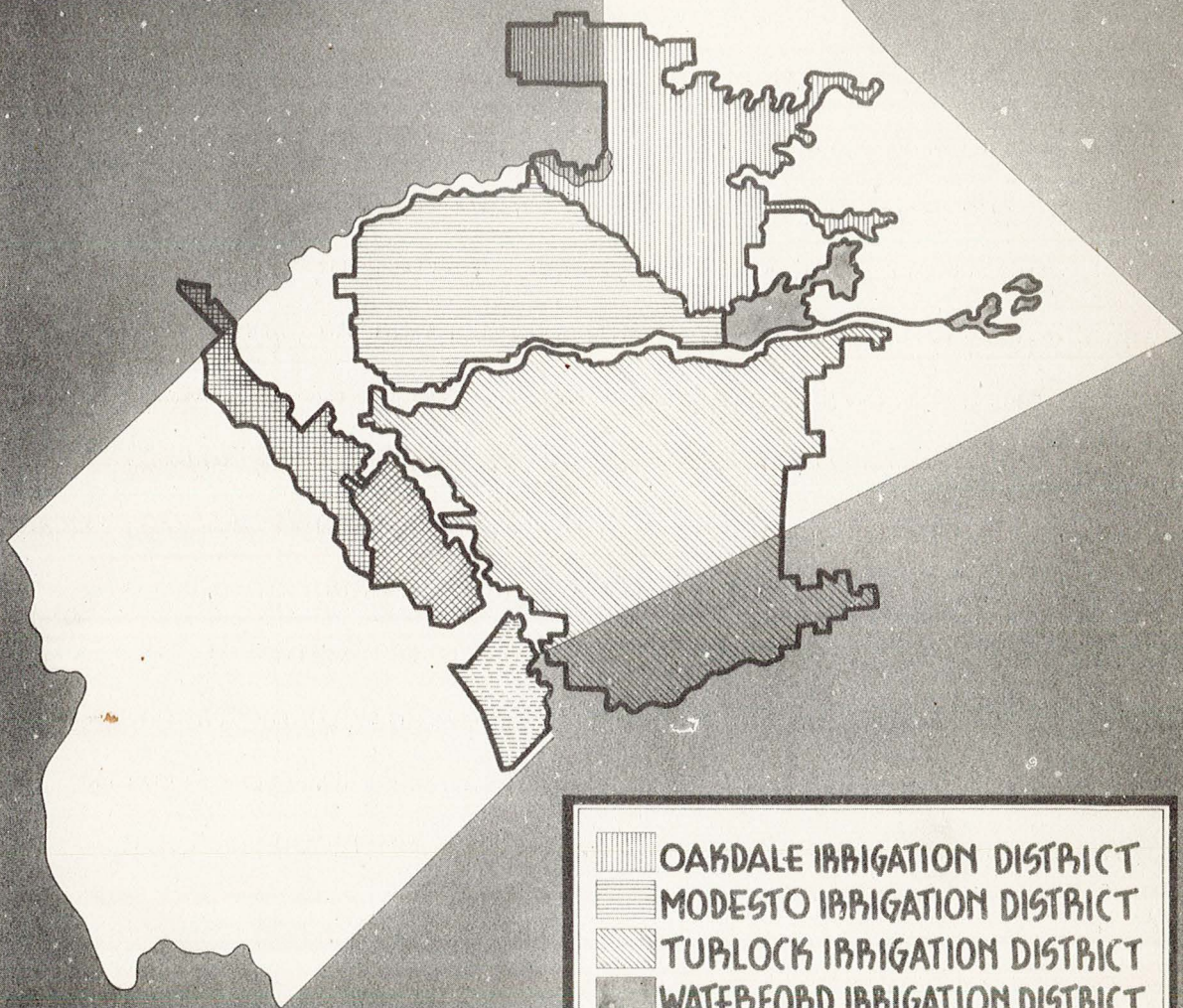
III. PRESENT STATUS OF SOIL AND WATER RESOURCES⁴

The bringing of water to the rich soil of the county was one of the first steps in soil conservation in that it allowed farmers to diversify and rotate their crops and thus release the soil from the eventual death by single cropping in wheat year after year. Dairy forage crops, beans, peaches, grapes, and almonds soon replaced the vast fields of wheat. The type of soil and the availability of irrigation water largely determined the crop to be planted. There are belts of clay-type loam paralleling parts of the Tuolumne, the Stanislaus, and the west side of the San Joaquin Rivers which support the peaches, grapes, and nuts for which the county is famous. The other parts of the valley floor that are further from the rivers have the sandy loam soil found near the outer edges of an alluvial fan. Alfalfa, beans, and other field crops are grown in this type of soil. On the gentle slopes rising

³Plate 3, page 26, shows the location and extent of these districts in Stanislaus County.

⁴The Work of the Forest Service, United States Department of Agriculture, Miscellaneous Publication No. 290, p. 12; Personal interview with Mr. James Biedenwig, Director, Agricultural Conservation and Stabilization Office of Stanislaus County; Personal interview with Mr. John Funnell, Soil Analyst, Agricultural Extension Service.

IRRIGATION DISTRICTS IN STANISLAUS COUNTY




-  OAKDALE IRRIGATION DISTRICT
-  MODESTO IRRIGATION DISTRICT
-  TURLOCK IRRIGATION DISTRICT
-  WATERFORD IRRIGATION DISTRICT
-  WEST STANISLAUS DISTRICT
-  PATTERSON WATER COMPANY
-  SAN JOAQUIN CANAL COMPANY

PLATE 3

toward the foothills to the east and west clover, dry-farmed wheat and some grazing are found. The foothill areas themselves are devoted to grazing.

In these sloping and foothill areas some soil erosion is going on. To restrain this activity farmers have erected check dams and contoured their land so that the undesirable soil erosion by water is negligible. The greatest problems of conserving the soil in Stanislaus County are those of maintaining its fertility and of proper water drainage to keep the alkalinity of the top soil within safe margins. Some of the agencies⁵ described later are continually advising and encouraging farmers to maintain their soils through proper crop rotation, cover cropping, and fertilizing. The irrigation districts are operating an intricate network of pumps and drainage canals in attempts to keep the water table down to a safe level. In spite of this activity there are some farmers who over-irrigate their crops and endanger their neighbors' land as well as their own. The loss of soil in this county through wind erosion is almost negligible since little bare soil is exposed during the windy season.

⁵Agricultural Conservation and Stabilization Office, Agricultural Extension Service.

The primary factors of water conservation for the county are those of protecting the mountain watershed to maintain the water supply and that of wisely utilizing the supply in dry years. The protection of the watershed is largely in the hands of the general public, the State and National Forest Services, and private lumber companies.

A second phase of the local water conservation program is the preparation of the soil to absorb water and the prevention of the loss of water from the soil. Absorption of water is facilitated by keeping the soil loose through cultivation and is aided by listing or contouring so that the water does not run off. Retention of water is promoted through further cultivation and mulching. All of these are common practices in Stanislaus County.

CHAPTER IV

A DESCRIPTION OF THE RESOURCE AGENCIES

Chapter III has presented the locale in which the various agencies operate and has discussed the problems of conservation which confront them. The purpose of this chapter is to give a factual description of each agency and to enumerate the services they make available to schools in order to give a better background for evaluating those services relating to conservation education.

For the purpose of clarifying their functions, the agencies have been divided into the areas of their primary activity: water conservation, soil and water conservation, and water development and utilization. Since the resources of soil and water are so closely related and interdependent, no doubt the functions of some agencies will overlap to a certain extent into other areas of activity.

The information necessary to describe the resource agencies was obtained through an interview with the chief officer of each agency or his representative. The agency survey sheet which served as a guide during the interview and on which pertinent information was recorded, appears on page 108 as Appendix A.

I. AGENCIES PRIMARILY RESPONSIBLE FOR
WATER CONSERVATION

Central Valley Project.¹ The Central Valley Project is a function of the Bureau of Reclamation, a division of the United States Department of the Interior. The Bureau of Reclamation was created in 1902 by the Reclamation Act for the purpose of bringing water to the seventeen western states which were then very dry. In many areas of the western states rainfall was ample, yet seasonal. The most important problem confronting the Bureau of Reclamation was to store behind dams the irregular stream flow which was high when the snow melted and dwindled down to almost nothing during the late summer and early fall periods.

The development of the water resources of the Central Valley was envisioned several years ago by the irrigation pioneers of this area. Their plan was to bring the water from the northern section of the great valley basin where a large surplus of water existed most of the time, to the southern part of the basin where there was a dearth of

¹A telephone interview with Mr. Carl H. Kadie, Jr., Manager of the Delta District, United States Bureau of Reclamation, Stockton, California, on January 2, 1953; and Central Valley Basin, United States Department of the Interior, Bureau of Reclamation (Washington D.C.: United States Government Printing Office, 1949), p. 75.

water practically every year. However, since this was a very costly plan, and because even the cooperating irrigation districts did not have sufficient financial resources, they abandoned the plan temporarily. In 1935 the state and federal governments came to their aid and established the Central Valley Project.

The activities of the project which would be of interest to the schools in the local area are the Tracy Pumping Plant, just across the San Joaquin County line, and the Delta-Mendota Canal, which runs the width of Stanislaus County, along the west side hills. Anticipated developments in the Delta district, of which Stockton is the center, include the Ione, New Hogan, New Melones, Farmington, and New Don Pedro Reservoirs.

The excursions to various activities of the project which would be most interesting to different grade levels of school children, are the Tracy Pumping Plant and the Delta Mendota Canal. A tour of the Tracy Pumping Plant features most of the phases of the activity of the entire project through the use of a large electrically controlled map of the Central Valley of California. In addition to conducting these guided excursions, the Bureau is willing to send speakers to various organizations, or school groups, to tell of the Central Valley Project and its

various activities.

Available from the Delta District Office in Stockton for school use are the following 16mm. sound films:

"Water in the West," which covers the reclamation projects in the seventeen western states.

"Corralling the Colorado," which covers the Boulder Dam Project.

"Lost River," which depicts various methods of weed control.

As a supplement to the services previously mentioned, the Bureau of Reclamation will furnish, upon request, the following maps and printed matter:

Maps:

California's 500-Mile-Long Central Valley Project.
 Central Valley Plan (Ultimate Construction), May 1950.
 Central Valley Project, February, 1951.
 Central Valley Project (Region 2), January, 1951.
 Solano Project.
 District Boundaries.

Fact Sheets:

Delta Cross Channel
 Delta-Mendota Canal
 Shasta Dam-Shasta Power Plant-Shasta Lake
 Tracy Switchyard

Pamphlets:

Central Valley Project, California.
 Harnessing the American River.
 Reclamation's Golden Jubilee--1902-52.
 Shasta Dam.
 Solano Project.
 Working Water for California's Central Valley.

Report:

Central Valley Basin Report (Senate Document 113,
 81st Congress, First Session).

II. AGENCIES CONCERNED WITH WATER AND SOIL CONSERVATION

Agricultural Conservation and Stabilization Office of Stanislaus County.² The Agricultural Conservation and Stabilization Office is an arm of the United States Department of Agriculture Production and Marketing Administration. The reason for the existence of this office is well stated by Secretary of Agriculture E. T. Benson in his "Foreword" to this office's 1954 Practice Handbook.

Productive land is the main source of food, clothing, and shelter for the American people. The conservation and improvement of this resource for sustained, productive use is an undertaking of vital concern to citizens of all walks of life.

The agricultural program is an important part, but only a part, of a coordinated effort to help land owners and operators attain soil conservation objectives. The total effort includes research, education, technical assistance, cost sharing, and such indirect aids as credit.

The fundamental purpose of the Agricultural Conservation Program, is to provide a means by which the public can share with land owners and operators the cost of carrying out needed conservation work over and above that which they would do with only their own resources.³

²Personal interview with Mr. James Biedenwig, Director of Local Office, July 26, 1954.

³The 1954 Agricultural Conservation Program for Stanislaus County, California, 1954 Practice Handbook, Published by the United States Department of Agriculture Production and Marketing Administration, Stanislaus County Office, 1209 K Street, Modesto, California.

The local office in Stanislaus County has been operating since 1936 to help local farmers and the public in general. Some of the specific projects with which they have been assisting include the cementing of ditches, the constructing of stock water dams, and the development of springs and wells.

The policies for the operation of the Stanislaus County Office are established by a five-man board of farmers elected by the farmers of the county.

The staff of the local office has been conducting excursions to their water conservation projects, the stock dams which they have assisted in constructing, and their various other projects. In addition, members of the staff visit organizations and school groups to explain the nature of the program and to illustrate some of their projects with colored slides.

Agricultural Extension Service.⁴ The Agricultural Extension Service is sponsored jointly by the University of California Extension and the United States Department of Agriculture for the purpose of providing an advisory service to the farm folk of the state and of tenerally improving the conditions of home life.

⁴Personal interview, July 27, 1954, with Mr. Albert L. Carter, Farm Advisor for Poultry.

The local office was established about 1915 with a staff of one man. The function of the office was to advise the farmers in the county regarding various kinds of crops and areas of farm activity. Under the leadership of A. A. Youngerman, Chief Farm Advisor, from 1917 to 1951, the staff was increased from one man to the present staff of twenty, including the clerical members. The various staff members now furnish counsel to agriculturists of the county in these areas: deciduous fruits and nuts; home economics; dairy and forage crops; field crop work; small fruits, grapes, and truck crops; general livestock; poultry; and etomology problems. They also conduct research and supervise 4-H Club activities.

This agency is particularly valuable to high school, junior college, and veteran's agricultural classes in that it has a large number of services available to these groups. These services include excursions to places of interest where demonstrations in various lines of activity are presented. Members of the staff are continually going to school groups, explaining their work, giving vital information pertaining to the unit or study pursued by the particular group. Available locally are charts and maps of local soil surveys, insect life cycles, and plans for the building of farm structures and equipment. Available

also through the University of California Extension Service in Berkeley are a large number of motion pictures, posters, and bulletins pertaining to agricultural subjects. These titles are too numerous to mention here, but may be obtained by writing the University of California Extension, Berkeley 4, California.

Stanislaus National Forest.⁵ The Stanislaus National Forest is a parcel of land occupying most of Tuolumne County and small parts of Amador, Calaveras, and Mariposa Counties.⁶ The Forest is administered by the United States Department of Agriculture Forest Service.

The Forest Service had its beginning in 1891 when Congress authorized the President of the United States to set aside land for forest reserves. In 1907 these parcels of land became "National Forests." The Stanislaus National Forest is one of these.

The Stanislaus National Forest was created in 1897 by proclamation of President Cleveland and derived its name from the Stanislaus River, which has most of its

⁵Forester F. M. Sweeley supplied subsequent information in a telephone interview on January 2, 1953, and in a written follow-up on January 8, 1953.

⁶Map of Stanislaus National Forest of California, published by the United States Department of Agriculture Forest Service, 1950.

beginnings within the environs of the National Forest. The forest headquarters are in Sonora, California.

The function of the Stanislaus National Forest staff is the administration, management, and protection of the National Forest land within its jurisdiction, together with research and experimental work in forestry and the utilization of forest products.

As is true with most of the other agencies, the most important service of the Forest Service is making available to school groups excursions conducted by one of the qualified forest officers. Other services include the distribution of posters and printed matter which are available upon request from the San Francisco office. Samples or listings of these items are included in the Appendix.

County Agricultural Commissioner.⁷ The County Agricultural Commissioner's office is the local enforcement arm of the United States Department of Agriculture. The function of the office is to enforce the Agricultural and Weights and Measures Code. The enforcement activities pertain to all areas of agricultural endeavor, including

⁷Stanislaus County Commissioner Milo Schrock supplied this information in an interview on July 27, 1954.

rodent and weed control, bee culture, quarantines of various kinds, field and orchard diseases, and nursery developments.

The County Agricultural Commissioner's office was established in the local county about 1895. Prior to that date the same functions were performed by a County Board of Horticulture.

Because of the nature of the work of the County Agricultural Commissioner's office, the services available to schools are restricted to the Commissioner's staff visiting school groups to inform them regarding the functions of the Commissioner's office, and to make them familiar with the codes regulating various types of agricultural activity.

Stanislaus County Farm Bureau.⁸ The Stanislaus County Farm Bureau is an association of local farmers banded together for the purpose of promoting the welfare of the farmer through group action, and to unite farmers for the improvement of agricultural conditions throughout the county. The Farm Bureau has been instrumental in

⁸Interview with Mr. Fred Thiemann, Secretary of the Stanislaus County Farm Bureau, July 28, 1954.

initiating many marketing cooperatives that are now quite large and influential in agricultural circles. The Bureau has also played an important role in initiating legislation favorable to agriculture and to the welfare of farm people.

The local Farm Bureau was established about 1920 and is affiliated with both the State and the National Farm Bureau.

Although the nature of the activity of the Farm Bureau is not primarily educational, the staff of the Bureau make themselves available to various organizations and school groups to inform them of the activities of the Farm Bureau and to present some of the latest agricultural developments.

III. AGENCIES CONCERNED WITH WATER DEVELOPMENT AND UTILIZATION

Modesto Irrigation District.⁹ The Modesto Irrigation District is a non-profit corporation, owned and operated by the people residing in the district. The land owners and residents of the district elect five directors

⁹Mr. Charles D. Crawford, Water Superintendent of the Modesto Irrigation District, supplied the subsequent information in an interview with the investigator on July 27, 1954.

who administer the affairs of the corporation.

The passage of the Wright Act in 1887 paved the way for the establishment of the Modesto Irrigation District as a corporation whose primary function would be to supply irrigation water and power to consumers residing in the district.

The Modesto Irrigation District now supplies water and power to the Modesto area which is bounded on the north by the Stanislaus River, on the south by the Tuolumne River, on the west by the San Joaquin River, and on the east by a line very close to the Santa Fe Railway, which extends southeast from Riverbank.

The Modesto Irrigation District officials conduct excursions to the La Grange and Don Pedro Dams, to the water reservoirs, and to various phases of the irrigation systems, such as canals, drops, and lateral ditches. The District also can furnish maps of the District and rainfall charts depicting the fluctuation of rainfall over a period of approximately fifty years, as well as table of information on water consumed and crops irrigated. In addition, the Irrigation District makes available to school groups speakers who can give information about the activities of the Irrigation District and provide suggested solutions to problems pertaining to water utilization and conservation.

Oakdale Irrigation District.¹⁰ The Oakdale Irrigation District is also an independent public corporation, established in 1909 to furnish water to the consumers in the Oakdale Irrigation District. The District serves people residing in the Oakdale, Riverbank, Valley Home, and Knights Ferry areas.

At the present time the Oakdale Irrigation District, in conjunction with the South San Joaquin Irrigation District, is in the midst of a tremendous expansion program. The program consists of constructing two dams, the Tullock Dam and Donnell Flat Dam, whose reservoirs will supplement the water backed up by the present Melones and Goodwin Dams on the Stanislaus River. Upon the completion of these projects the water storage capacity on the Stanislaus River will be multiplied many times.

The Oakdale Irrigation District makes available to school people in the Oakdale area the same general services provided by the Modesto Irrigation District.

Turlock Irrigation District.¹¹ The Turlock Irrigation District was organized in 1887 right after the passage

¹⁰Personal interview, July 26, 1954, with Mr. Clarence Quinley, Secretary of the Oakdale Irrigation District.

¹¹Personal interview, July 28, 1954, with Mr. R. V. Meikle, Chief Engineer of the Turlock Irrigation District.

of the Wright Act, which authorizes its formation. The development of the Turlock Irrigation District is very interesting in that it paralleled very closely that of the Modesto Irrigation District and determined largely the development of the entire area served by the irrigation system. The first development was the construction of a diversion dam about a mile and a half east of the town of La Grange. This dam was built jointly by the Turlock and Modesto Irrigation Districts, being completed in the year 1893, six years after the passage of the Wright Act. The second development was the construction of the Davis Reservoir in 1913. This reservoir is now named the Turlock Reservoir, and has a capacity of 50,000 acre feet. The third, and probably the most important development in the history of the District was the construction, in cooperation with the Modesto District, of the Don Pedro Dam. The completion in 1923 of the Don Pedro Dam increased the storage capacity of the two Districts by 289,000 acre feet and put into operation three 5,000 kilowatt generators.

The Turlock Irrigation District is the largest in Stanislaus County. It encompasses an area of 185,000 acres, of which 42,000 acres are in Merced County. The District is bounded on the west by the San Joaquin River, on the north by the Tuolumne River, on the south by the

Merced River, and extends to the foothills approximately eighteen to twenty miles east from the San Joaquin River.

The Turlock District also makes available to schools services similar to those provided by the Modesto Irrigation District.

CHAPTER V

A DESCRIPTION OF THE METHOD AND FORM USED IN EVALUATING THE AGENCIES

Since this study is concerned with the development of an evaluative technique in appraising the community agencies described in Chapter IV, the method and form to be used in evaluating these agencies were very carefully studied. The use of an evaluation scale in conjunction with the interview method was suggested by the thesis committee and reinforced by Good, Barr, and Scates. They encouraged the use of the interview as follows:

Charters has indicated a vast field of information relating to the solving of practical problems, which can be tapped through the interview. That is, persons who are notably successful in their various undertakings have certain methods of work, they are guided by certain standards, and they react in certain ways, which make their work more successful than average. . . .

This is one of the peculiar advantages of the interview--following up any lead that is given, and stimulating the person to talk on it and develop it.¹

Continuing their discussion of the interview, Good, Barr, and Scates emphasized the need for organizing well the material to be discussed. They make the following

¹Carter V. Good, A. S. Barr, Douglas E. Scates, The Methodology of Educational Research (New York: D. Appleton-Century Company, Inc., 1945), pp. 385-87.

suggestions:

As in preparing the questionnaire and other schedules, one must give considerable thought to the planning of questions he is going to ask. An interview for research purposes cannot be a haphazard affair, or just a pleasant meeting. These statements do not mean that the interview should proceed simply as a series of questions. It should be pleasant and to some extent informal, but underneath this social naturalness must be a flood of questions that will give to the interviewer the information he is seeking, without gaps and without doubtful interpretations

To avoid a meaningless set of materials when he has his facts all gathered, however, all of the interviewer's work must be done with a plan. He must have decided in advance, or before going very far, just what information is necessary to draw conclusions that will satisfy his principal purpose in making the study.²

Following these and other suggestions an evaluational scale for appraising each agency by each teacher was drafted. Before setting up the scale certain criteria which should be considered in determining the value to the school of a resource agency were involved.

It seemed that to be valuable to the schools a resource agency should meet the following criteria:³

²Good, Barr, and Scates, loc. cit.

³William A. Yeager, School-Community Relations (New York: The Dryden Press, 1951), pp. 114-16; Edward G. Olsen, School and Community (New York: Prentice-Hall, Inc., 1945), pp. 30-38; George E. Pitluga, Science Excursions into the Community (New York: Teachers College, Columbia University, 1943), pp. 13-22; William H. Hatley (ed.), "Audio-Visual Materials and Methods in the Social Studies," Eighteenth Yearbook of the National Council for the Social Studies (Washington, D.C.: National Education Association, 1947), pp. 35-36; "Helps in Planning Conservation Learning Experiences," Wisconsin State Department of Public Instruction Curriculum Bulletin, 1943, pp. 17-18; "So You Want to Take a Study Trip," San Diego County Curriculum Journal, 1954, pp. 6-7.

1. Present the material on the level that the students using the resource can understand.
2. Present the facts as part of larger generalizations rather than isolated bits of information.
3. Present the information in such a way that the students using the resource will gain basic concepts that will be helpful to them.
4. Provide opportunities for developing the attitudes that will predetermine action to put into force the information which they have gained at the resource or at previous sessions in the classroom.
5. Provide wherever possible opportunities for the students to become better acquainted with the community.
6. Provide opportunity for students to achieve the objectives of education.⁴
7. Provide services within eighty miles from the school so as to require not more than two hours traveling time.
8. Organize the service in such a way that it will require less than four hours to utilize.

⁴The educational objectives used on the evaluation scale were those specified by the committee which set up the California state framework for the elementary social studies: Assuming civic responsibility; developing human relationships; developing economic efficiency; and the realization of individual capacities.

9. Make the service available during the day on certain days of the week so as to fit into the schedule of the schools.

10. Provide information making it possible to protect the students from safety hazards encountered en route to the resource or at the resource.

11. Cooperate fully with the school.

Each of these items when set up on the scale were to be evaluated by the teacher using the resource agency by checking the item on a five-point scale. Five points of the scale finally decided upon were:

1. Exceptional
2. Superior
3. Ordinary
4. Inferior
5. Very Poor

Even though the use of this type of scale depends upon the subjective judgment of the evaluator, the use of the interview with people who have had considerable experience in using resource agencies seems to validate to a certain extent its employment here.

As soon as the evaluation scale⁵ was set up the next problem was that of locating teachers who had had

⁵Refer to Appendix B, page 110.

considerable experience in teaching conservation and in using community agencies, and who also had used the resource agencies decided upon. These teachers were located either through the knowledge of the investigator, or by a letter which was addressed to the school principals of the county, or to elementary consultants who contacted schools in the county.⁶ The letter listed the agencies to be evaluated and solicited the cooperation of the principal or consultant in locating teachers who had made use of one or more of the agencies. The teacher was then contacted and a definite appointment was made so that ample time for the interview would be provided.

The interview with teachers lasted about fifteen to thirty minutes for each agency used. The amount of time taken depended, of course, upon the amount of explanation necessary by the interviewer and the evaluator. At no time were teachers handed the evaluation scale and asked to complete it. The final result of each interview was a completed evaluation scale. The scale included descriptions of concepts developed at the resource, the potential opportunities for getting acquainted with the community, the safety hazards to be encountered en route and at the resource, as well as the ratings indicated for each by the teacher.

⁶Refer to Appendix C, page 113.

CHAPTER VI

PRESENTATION AND EVALUATION OF THE DATA

The five previous chapters have presented material which will serve as a background for the data to be presented and evaluated here. In Chapter V a description of the method and scale used in evaluating the agencies was given. The criteria and the five points used on the evaluation scale were developed and described.¹ It was also explained that the teachers doing the evaluating had been selected because of their experience and qualifications in using resource agencies, and therefore would have a more valid basis on which to make the evaluation of the agencies. It has, in addition, been point out that because of the limited nature of the field of the study it would be impractical to make a statistical presentation of the data.

The data presented in this chapter consist of summaries of ratings of the agencies by the teachers who utilized them. The teachers evaluated the services of each agency used on the basis of the criteria established. The evaluations are summarized in the text by giving the

¹cf. ante, pp. 46-47.

average rating assigned by the teachers to the services rendered by each agency. The tables indicate the number of teachers who assigned specific ratings to the services of each agency on the basis of the criteria.

I. AGENCIES PRIMARILY RESPONSIBLE FOR WATER CONSERVATION

Central Valley Project. The Central Valley Project is a function of the United States Bureau of Reclamation. It exists to develop and redistribute the water resources of the Central Valley of California. The Tracy Pumping Plant and the Delta-Mendota Canal are vital parts of the project to move water from the upper Sacramento Valley to the San Joaquin Valley. These activities of the Central Valley Project are in or near Stanislaus County and have been important to the conservation education program of the schools of the county.

Table I summarizes teachers' evaluations of the various phases of the services of the Central Valley Project.

The educational opportunities made available by this agency through its various services are its important contributions to the schools. The material is presented by the personnel of the agency on a level that children

TABLE I

A SUMMARY OF EVALUATIONS MADE BY FIVE TEACHERS WHO USED THE CENTRAL VALLEY
PROJECT AS A COMMUNITY RESOURCE

Criteria	R A T I N G				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation	1	3	1		
2. Presentation of facts	1	3	1		
3. Development of concepts		5			
4. Development of attitudes	1	2	2		
5. Acquaintance with community	1	2		2	
6. Achievement of objectives		3	2		
7. Conservation services		2	2		
8. Availability in distance			5		
9. Adaptability to school program			5		
10. Safety factors			5		
11. Cooperation with schools	1	4			

from the third grade through the adult level can easily understand. The ratings on the evaluation scale of the appraising teachers varied from ordinary through exceptional, but averaged superior. It seems quite remarkable that agency personnel who are to a large extent dealing with adults only can adapt their material to children of the third grade, seventh grade, high school, as well as to adults of the veteran's agricultural classes.

One of the most important factors in helping school students develop proper concepts is that information and facts be presented and organized in such a way that it is easy for children to summarize and make generalizations. The teachers listed many concepts which were developed through proper handling of the presentations. The following concepts were mentioned: That there is a need for the water resources of California to be developed; irrigation water is necessary to develop fully the land resources of the valley; there is a difference in the need for water in various areas of the Central Valley of California. The agency was rated superior in the area of organizing material and developing concepts.

Information regarding wholesome conservation practices is useless unless proper attitudes can be developed in the students so that when the opportunity presents

itself they will have the will to practice what they have learned. There is evidence in the teachers' evaluations that the use of the Central Valley Project offered ample opportunity for developing wholesome attitudes toward conservation and toward the federal government. Following are some of the opportunities for developing attitudes reported: each worker's contribution is valuable to the project; to work with one's hands or to be a day laborer is a dignified occupation; the use of mechanical power is a very important modern way of doing work; it is important to conserve and use wisely our natural water and soil resources; that the federal government, and the Bureau of Reclamation in particular, are performing a very valuable service for the people and are not attempting to usurp the people's prerogatives.

In an interview with the investigator one of the teachers made the comment that a group of adult veteran agricultural students were quite hostile to the speaker from the Bureau prior to and at the beginning of an excursion. However, after listening to a clear explanation of the project and its purposes, they were completely friendly to the Bureau and were in sympathy with the operations of the Central Valley Project. In providing opportunities for developing conservation attitudes the appraising teachers

gave this agency an average evaluation of superior.

Becoming better acquainted with the community is a valuable outcome of the use of community resources. Teachers listed the following ways in which the children became better acquainted with their communities: third grade children were studying the county community and had an opportunity on their trip to the Delta-Mendota Canal to view the western Stanislaus County area and see the cities, agriculture, and industries in that area; they had an opportunity to see the various types of irrigation systems and the community water supply. Through the use of enlarged illustrated lighted maps, students were able to see the source of their water supply and the part their community has been playing in making the water available. The teachers again rated the agency superior in the field of providing opportunities for the students to become better acquainted with their community.

The use of a community resource should help achieve educational objectives. The average of the ratings by the teachers on this criterion was between superior and ordinary.

The services and materials utilized by the evaluating teachers were maps of the Central Valley Project, a packet of materials entitled "Soil and Water Conservation for Elementary Schools," excursions to the Tracy Pumping

Plant and the Delta-Mendota Canal, various bulletins published by the Bureau of Reclamation, and a speaker from the central office in Sacramento, who spoke on the constructions and operation of the entire Central Valley Project. Since various schools have used nearly all of the services available from the Central Valley Project, this resource has been used almost to the fullest advantage. These services were rated superior by the evaluating teachers.

The places visited were the Delta-Mendota Canal which extends across the lower foothills on the western border of Stanislaus County and the Tracy Pumping Plant which is approximately fifteen miles northwest of Tracy in San Joaquin County. Because of its location on the west side of the county, it would obviously be more accessible to schools west of the San Joaquin River. However, many of the schools situated in the central and eastern section of the county, took advantage of the excursions to these areas. The round trip distance traveled varied from thirty to one hundred miles, and the time on the road varies from one to three hours. This time and distance is well within the limits which would be considered readily accessible to schools even in the eastern section of Stanislaus County. The school that consumed three hours en route was also studying Stanislaus County and took other stops to acquaint

the children with other phases of the county as well as visiting the Delta-Mendota Canal.

Another important factor in appraising the value of a community resource to a school program, is how well this resource can be adapted to various levels and subject fields of the school program. Teachers working at various grade levels indicated that this resource could be used as low as the third grade in the elementary school, the junior high school, the senior high school, junior college, and adult classes. Perhaps equally important is the teacher's attention to alerting the resource person to what she hopes her students may gain from visiting the resource. Her discussion with him of the amount to be covered and the concepts to be developed is most important. There is evidence that this was done, in that the material was judged to be suitable for the various grade levels.

The teachers indicated that they were using this resource in the subject matter fields of agriculture, social studies, language arts, and science in both the elementary and high school fields. This is an indication that conservation is being correlated with the entire classroom program. There is evidence here that the participating teachers are using conservation to pervade all subject areas during a major part of the year.

The time required for the entire use of the resource, including the trip and time at the resource, varied from one to five hours. The longer trips were made by elementary students whose programs are made flexible by their having one teacher for the entire day, and by high school agricultural students whose program is somewhat flexible. At the present time other high school classes are almost completely prohibited from taking trips requiring more than an hour, because of their single period scheduling. This agency is adaptable to the school program in the respect that it is available all day during the five school days of the week.

The only safety hazards to be encountered on the trip to this resource were the ordinary traffic hazards, such as the railroad crossings the children regularly encounter on the way to school. Those who visited the Delta-Mendota Canal during its construction were exposed to the hazards of heavy machinery in operation and the steep canal sides. However, the teachers indicated that there was no difficulty in keeping the children a safe distance from the machinery and from the side of the bank, and still be close enough to see the important operations and to hear the guide. This again is evidence that teachers have made proper preparations both with the resource and with the

children. The safety hazards were rated as ordinary.

The average rating of the Central Valley Project in respect to its cooperativeness with the school was slightly above superior. The fact that all of the other items previously reported were rated superior would indicate that there was a high degree of cooperation between the school and the agency, and that there was a definite willingness on the part of the agency to serve the schools.

II. AGENCIES CONCERNED WITH SOIL AND WATER CONSERVATION

Agricultural Conservation and Stabilization Office of Stanislaus County. The Agricultural Conservation and Stabilization Office assists farmers in utilizing wisely the soil and water resources. Funds are made available to help farmers cement ditches, construct stock dams, and develop springs and wells.

This agency was used by veteran's agricultura groups during the time of this study. However, the projects fostered by the Agricultural Conservation and Stabilization Office are such that elementary students and classes of high school subjects other than agriculture could profit by using this resource.

Table II presents a complete summary of teachers' evaluations of the Agricultural Conservation and Stabilization Office.

The vocational agriculture teachers rated this agency ordinary in relation to its presenting the material on a level the students could understand. Since the students are mature and the resource personnel are accustomed to working with adults, it was not difficult for them to present their material on a level that these students could understand.

The material and facts presented by the agency personnel were well organized and contributed toward developing certain concepts. In this respect they were rated superior. The concepts suggested through the use of the resource agency were as follows: that water can be conserved and erosion controlled by the erecting of stock dams; the formation and organization of conservation districts help farmers to conserve the soil and water resources; conservation districts may be formed through cooperation with the Agricultural Conservation Association. These are very valuable concepts for all school students to understand. The viewing of these dams and understanding how they assist in water conservation and erosion control could be very helpful to a group of elementary children

TABLE II

A SUMMARY OF EVALUATIONS MADE BY TWO TEACHERS WHO USED THE AGRICULTURAL
CONSERVATION AND STABILIZATION OFFICE AS A COMMUNITY RESOURCE

Criteria	R A T I N G				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation		1	1		
2. Presentation of facts		1		1	
3. Development of concepts		2			
4. Development of attitudes		2			
5. Acquaintance with community			1	1	
6. Achievement of objectives		1	1		
7. Conservation services		1	1		
8. Availability in distance			2		
9. Adaptability to school program		1	1		
10. Safety factors		1	1		
11. Cooperation with schools		1	1		

launched on a social studies project.

The personnel of this agency was also given credit for changing the attitude of some of the students from a critical one to one of respect for this government program. It was reported that some of the men achieved a greater insight into the value of and the need for the formation of a conservation district. The appraising teachers rated the agency superior for presenting opportunities for the developing of these attitudes.

The reports indicated that the use made of this agency provided limited opportunities for further acquaintance with the community.

The evaluators felt that this resource agency assisted the teachers and their students to achieve the educational objectives of civic responsibility and promoting economic efficiency. The agency was assigned the rating of superior.

The services and materials of the Agricultural Conservation Association utilized by the evaluating teachers included maps of the conservation districts, excursions to a series of earthen dams, printed information and speakers on the activities of the Agricultural Conservation Association and formation of conservation districts. These services were assigned a rating midway between superior

and ordinary. Since this is the only government agency which provides this kind of service, this agency could be used to a very good advantage by the teachers and students of the elementary schools to supplement the conservation phases of the social studies program.

Most of the projects of the Agricultural Conservation Association are in the foothills on the western and the eastern slopes of Stanislaus County, therefore, the farthest distance is twenty-five miles. This distance is well within reasonable limits for school use in that not over an hour of traveling time would be required.

This agency was used and evaluated by veterans' agriculture classes while considering the problem of soil and water conservation through the formation of conservation districts. The teachers rated the resource as superior in relation to its presentation of material adaptable to the adult level.

The use of the resource required about two hours in addition to traveling time. This time is well within the limits of the schedules of vocational agriculture in high school, junior college, and veterans' classes, as well as of the elementary program. Even though the services of this resource can be made available to schools any time during the day from Monday through Friday, regular high school

classes limited to one period would find it difficult to make use of them.

The use of this resource involves no unnecessary hazards. Those encountered en route to the earthen dams are the regular traffic hazards. The only safety precautions necessary at the dam are to keep the spectators back a few feet from the edge of the deep reservoir. Teachers experienced no difficulty in this respect.

A very important phase of the service rendered by an agency is the manner in which the service is rendered. The teachers rated the Agricultural Conservation Office midway between superior and ordinary in regard to its cooperation with the school and its willingness to serve it.

Agricultural Extension Service. The Agricultural Extension Service exists primarily to provide advisory service to farmers and specializes in educating the public in the field of agriculture. For this reason it is a resource agency of especial value to the schools for conservation education.

The Agency was used by several teachers of high school and veterans' agriculture classes. One elementary teacher invited a home demonstration agent to advise her in conducting a nutrition experiment with guinea pigs.

The following paragraphs describe the evaluations

of educational opportunities provided through the use of the Agricultural Extension Service, as shown in the summary of teachers' ratings on the basis of all the criteria in Table III.

The group rated the agency superior in presenting the material in such a way that the students could easily comprehend it. This record is exceptional since a large number of different individuals presented the material to both high school and adult students.

The evaluating teachers rated the Extension Service superior in respect to organizing and summarizing the material presented so that it lends itself toward the development of wholesome concepts. Some of the concepts presented by the agency personnel at their various demonstrations were as follows: grafting and budding have specific applications and can be used only in certain cases; for pasture to develop a maximum yield it must be properly fertilized and must be grazed in strips; only specific varieties of hybrid corn can be planted in certain areas of the county according to the soil structure of the area; successful grafting requires the proper selection of the root stock and proper technique of placing the graft on the root stock; soil amendments must be used according to the structure of the soil; specific soil foods have specific

TABLE III

A SUMMARY OF EVALUATIONS MADE BY EIGHT TEACHERS WHO USED THE AGRICULTURAL
EXTENSION SERVICE AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation	2	4	1		
2. Presentation of facts	1	4	2		
3. Development of concepts		6	2		
4. Development of attitudes	1	5	2		
5. Acquaintance with community			3	5	
6. Achievement of objectives	2	5	1		
7. Conservation services	2	4	2		
8. Availability in distance		4	3		
9. Adaptability to school program	2	6			
10. Safety factors			8		
11. Cooperation with schools	5	3			

nutritional values; the ability of soil to support plant life is dependent entirely upon its nutritional status.

The development of the attitudes accompanying the concepts is more important than the concepts themselves. Following are some of the attitudes for which opportunity was given to develop: that grafting is a very valuable way of getting the most out of soil; sound management of soil means a profitable operation so that it pays to add soil nutrients to the soil; a sense of encouragement upon realizing that corn could be grown as a dairy forage crop in areas where it previously had not been grown; the creation of interest in grafting through seeing the advantages of grafting; realizing the importance of amendments to soil and of checking the soil before purchasing land. The opportunities for the development of such a wide variety of concepts and attitudes is indicative of the scope of the program of the Agricultural Extension Service. Their program is even more extensive than as indicated here, since only those services which dealt directly or indirectly with soil and water conservation were selected. The evaluators rated the Extension Service superior for providing opportunities to develop attitudes.

Because of the nature of the activities conducted by the Agricultural Extension Service there was little

opportunity for the students to become better acquainted with their community other than to know the crops of the area in which they lived, to learn more about the soil structure in their particular areas, or to become more acquainted with the men who work in their community.

In respect to helping the school classes achieve their educational objectives, the personnel of the agency was rated from ordinary to exceptional, with an average of superior. An important factor in education is that the teachers felt that use of the resources of a community helps them achieve the most important educational objectives.

The services and materials provided by the Agricultural Extension Service are varied. The average rating was superior. These services and materials include the following items: soil maps and charts; charts of the comparative agriculture production and income; charts of the improved practices of agricultural economics and general conservation; excursions of various kinds to many different places where demonstrations and exhibits were made; Future Farmers of America posters; bulletins on all subjects pertaining to agriculture; resource visitors pertaining to all of the various kinds of services provided by the Extension Service; their special services,

which include acting as judges for agriculture meets, and providing profiles of the soils in various parts of Stanislaus County. The extensive use of these services by the regular and veterans' classes of the high school and junior college is evidence of their value to the schools. Even though the services and materials are of a technical nature, they could be used to definite advantage by more of the elementary schools in their social studies and science programs.

The excursions and meetings conducted by the Agricultural Extension Service are in various parts of the county and have varied in distance from one to twenty-five miles from the schools using the service. The distance stated requires a maximum of one hour traveling time each way and is certainly within a reasonable limit to make the resource available to schools. At least half of the schools use the Extension Service by inviting the resource visitors to come to the schools to speak and show their materials. This type of use requires less time for the school classes.

The evaluating teachers were primarily teaching high school and adult classes and have indicated that the material was presented on a level adapted to these students.

The evaluators indicated that it required one to four hours to make use of the Agricultural Extension Service, and that it was available all day during each of the five days of the week. This again indicates that these minor limitations make the resource readily available and adaptable to use by the schools. The average rating was superior.

All of the evaluators indicated that there were no safety hazards indicated en route to the demonstration except the ordinary traffic hazards which were easily overcome. Most of the traveling to and from school is in buses. None of the teachers reported encountering any safety hazards at the resource.

The quality of the service rendered by the Agricultural Extension Service is indicated by the rating of either exceptional or superior for their cooperation with school programs and their willingness to serve the schools. The agency was rated exceptional in this respect by over half of the evaluators.

Stanislaus National Forest. The function of the Stanislaus National Forest staff is the administration, management, and protection of the National Forest land within its jurisdiction. Research and experimental work in forestry and the utilization of forest products are

also important phases of their work.

The Forest is in Tuolumne County, a distance of fifty miles from Modesto, the County Seat of Stanislaus County. In spite of its distance from the county, it has been used by several Stanislaus County teachers. The Stanislaus Forest is a vital link in the water conservation program of Stanislaus County in that practically all of the water used for irrigation in the County originates within the boundaries of the Stanislaus National Forest.

For this reason the Stanislaus National Forest offers many opportunities of an education nature, primarily in the field of water conservation. It is interesting to note that both elementary and high school teachers used this resource and both gave it a rating of superior for presenting the material on a level that the students could understand.

The average rating given for organizing and summarizing the material presented and the assisting in development of concepts was midway between superior and exceptional, as shown in Table IV, which presents the teacher evaluations of the agency. The most important potential concept set forth by all the teachers was this one: there is a definite relationship between the condition and care of the forest water shed and the quality and amount

TABLE IV

A SUMMARY OF EVALUATIONS MADE BY THREE TEACHERS WHO USED THE STANISLAUS
NATIONAL FOREST AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation		3			
2. Presentation of facts	1	2			
3. Development of concepts		3			
4. Development of attitudes		3			
5. Acquaintance with community			1	2	
6. Achievement of objectives		3			
7. Conservation services		3			
8. Availability in distance				3	
9. Adaptability to school program		1	2		
10. Safety factors	1		2		
11. Cooperation with schools	1	2			

of the water supply for Stanislaus County. This is a very important concept, and is the beginning of the realization on the part of the students that there is an interdependence among all natural resources.

The teachers reported these attitudes from the evidence of children's discussions: we must take good care of our forests in many ways if we want them to work for us; we must be careful with fire and fire materials in the forest area because they endanger not only the forest and the undercover which stores the water, but also the forest wildlife. The rating was superior. The investigator was able to accompany one of the groups on their trip to the Stanislaus National Forest and made particular note of the fact that the children were aware of the possibility of damage to the forest by careless handling of fire materials. Their follow-up discussion and remarks were indicative of their change in attitude.

The evaluating teachers rated the agency superior in helping achieve educational objectives. Civic responsibility was particularly mentioned. When the presentation of the resource material is individualized to the extent that the children identify themselves with the forest personnel, the agency is helping the children feel they are personally responsible for the public property.

The services and the materials provided by the Stanislaus National Forest include the following items: charts of forest fire and the water retention of litter in the forest; excursions to the forest; displays in the office; motion pictures; posters on fire prevention; leaflets on forest, water, and wildlife conservation; resource visitors who come to the school to discuss any phase of the forest service program; and special services, including book marks and badges with fire prevention mottos. The dramatic quality of their presentation, and the obvious urgency for the care of the forest make these services valuable to the school program.

Because of the distance involved, the Stanislaus National Forest is the agency least accessible to the schools. It requires nearly a full day to travel to Sonora and make an excursion through part of the National Forest. Because of the time necessary most schools prefer to make the trip on Saturday. The forest service personnel is available for school trips on Saturdays.

The teachers indicated that the material presented by the forest service personnel was adaptable from the fourth grade up to the adult level, and could be used in the social studies, science, and agriculture classes. This again speaks for the ability of the personnel to adapt the material to the level of the people to whom they are

presenting it.

The safety hazard mentioned was the possibility of small children getting lost while visiting areas of the Forest. However, none were reported lost. The teachers had been very careful in alerting the children to the possibility of danger and to the need for following directions carefully. An ordinary rating was assigned.

The Stanislaus National Forest was rated by the evaluating teachers midway between superior and exceptional for their close cooperation with the school, for the courtesy they displayed, and for their willingness to serve the schools.

County Agricultural Commissioner. The office of the County Agricultural Commissioner is another one of the agencies which lends itself best to use by agriculture classes at the high school, junior college, and adult levels.

The use of the agency proved its value to the students by acquainting them with the regulations concerning diseases and pests that attack the soil and rob it of its fertility and usefulness.

The manner in which the personnel of this agency presented material on the level of the agricultural classes was rated superior, as shown by Table V, which gives a complete summary of teachers' evaluations.

TABLE V

A SUMMARY OF EVALUATIONS MADE BY FOUR TEACHERS WHO USED THE COUNTY
AGRICULTURAL COMMISSIONER AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation	1	3			
2. Presentation of facts	1	2		1	
3. Development of concepts		2	2		
4. Development of attitudes		2	2		
5. Acquaintance with community			1	3	
6. Achievement of objectives	1	1	2		
7. Conservation services	2	1	1		
8. Availability in distance			4		
9. Adaptability to school program		4			
10. Safety factors			4		
11. Cooperation with schools	1	2	1		

The use of the resource by students on the high school and the adult level may have influenced the rating. For their effectiveness in presenting facts, the agency personnel was rated an average of ordinary. Presented during the various sessions were the following concepts: The quality of the soil and agricultural products can be improved by controlling diseases and pests; the public is protected by the Agricultural Commissioner's Office; there is a definite need for the inspection and control of pests and diseases; that the County Agricultural Commissioner's Office offers to help farmers in many ways.

The personnel of the Agricultural Commissioner's Office was apparently quite successful in providing opportunities for developing the attitudes as reported by the evaluating teachers: a realization of the importance of getting quality and uniformity of grade of products; a realization of the importance of the Agricultural Commissioner's Office in the protection of the public; possessing a desire to control pests and diseases of the soil; a feeling of cooperation with the agricultural enforcing and regulating body of the county. The rating of superior indicates that the personnel presented opportunities for developing attitudes which will be helpful to the students.

All of the reporting teachers used a resource visitor,

therefore, there were few opportunities provided for getting the students better acquainted with their communities. The rating was inferior.

The evaluators reported that the use of the resource assisted them in achieving educational objectives to a superior degree. All of the four factors of educational objectives were mentioned. Promoting civic responsibility and economic efficiency were given the highest ratings.

The services rendered by the Commissioner's office are limited because of the nature of the functions of the office. The following services and materials are available: posters depicting various grades of fruit; bulletins on rodent control and on state and country regulations; speakers on the functions of the Commissioner's office, or the program of inspection and control of the various diseases and pests. The agency also provides for inspection and identification of specimens which may be diseased. The services were rated superior.

The County Agricultural Commissioner's Office is located in County Center Number Three, two and one-half miles east of Modesto. It is easily accessible by telephone to teachers who wish to request a resource visitor or who wish to have a demonstration of disease and pest control on a site near their school. All of their services are available any time of day during the school week.

Since all of the teachers evaluating the Commissioner's office requested a speaker to come to the school, there was no traveling involved and no safety hazards were reported.

The personnel of the agency exhibited superior cooperation with the schools as indicated by the evaluators.

Stanislaus County Farm Bureau. The objectives of the Stanislaus County Farm Bureau are to unite farmers, promote their welfare, and seek the betterment of general conditions through soil and water conservation.

The Stanislaus County Farm Bureau has been used by agricultural classes in the high school. However, the research and other information available through the Farm Bureau Office is suitable for use by students at other grade levels.

The evaluating teachers ranked this agency ordinary in reference to the manner in which the material was presented, as shown in Table VI. The material was proffered on a level that the students could understand and was organized and summarized so that it lent itself toward the development of certain concepts. The main concept set forth by the speakers from the Farm Bureau was that the Bureau is instrumental in organizing farm folk for action to improve the welfare of the farm population. A second

TABLE VI

A SUMMARY OF THE EVALUATIONS MADE BY TWO TEACHERS WHO USED THE STANISLAUS COUNTY FARM BUREAU AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation			2		
2. Presentation of facts			2		
3. Development of concepts	1			1	
4. Development of attitudes			1	1	
5. Acquaintance with community	1		1		
6. Achievement of objectives			1	1	
7. Conservation services	1		1		
8. Availability in distance	1		1		
9. Adaptability to school program	2				
10. Safety factors			2		
11. Cooperation with schools	2				

concept promoted was that to function properly a farm must be efficiently organized.

The corollary to these concepts was the potential development of the attitude that the Farm Bureau is a valuable organization which has been instrumental in improving the welfare of the agricultural communities of the county. The teachers rated the agency midway between ordinary and inferior for developing wholesome attitudes.

The educators ranked the personnel of the Farm Bureau ordinary for helping in achieving educational objectives. The greatest emphasis was on developing civic responsibility.

By virtue of the fact that the County Farm Bureau is not primarily an educational organization, the services provided to the schools are limited in nature. The Bureau makes available to schools and other organizations motion pictures; posters and bulletins on the subject of farm safety; speakers to discuss the functions of the Farm Bureau, their insurance and purchasing plans; and prize money for worth-while causes. The services were rated superior. Even though the services used by schools are more limited than those of other agencies they have apparently provided the schools with valuable assistance.

Like other agencies where the primary service is that of providing a speaker along with other printed materials,

the Bureau is as accessible as the telephone, and is available any time of the day during most of the school week. In view of the fact that excursions are not conducted by the Farm Bureau personnel no safety hazards are involved in the use of the agency.

The service rendered to a school is almost valueless unless it is rendered with a spirit of cooperation and willingness to serve. In this respect the evaluating teachers ranked the Farm Bureau superior.

The Farm Bureau, a private organization existing solely for the benefit of its own members, is to be commended for extending assistance to the schools.

III. AGENCIES CONCERNED WITH WATER DEVELOPMENT AND UTILIZATION

Modesto Irrigation District. Of the six irrigation districts in Stanislaus County, three of them have been evaluated by teachers for this study. The Modesto Irrigation District is the first of these to be reported.

By virtue of the nature of their function of providing water and power for the residents of their districts, none of the irrigation districts will be in a position to provide as many and varied services as some of the other governmental agencies.

High school agriculture teachers reported the use of this agency. However, the use of their services could lead toward the development of valuable concepts at all levels of the school program.

The services of the Modesto Irrigation District utilized by the reporting teachers were maps of the irrigation district, maps of the canal system, maps of the improvement districts, excursions to the substations and canal systems, speakers discussing water control and the development of the Cherry Valley and the Greater Don Pedro Dams, information and advice pertaining to pump testing. Table VII presents the teacher evaluations of other phases of the service rendered by Modesto Irrigation District. The services were rated superior.

By assigning the rating midway between superior and ordinary, the evaluating teachers indicated that the material was presented by the agency personnel on a level that their students could comprehend.

A superior rating for the organization and presentation of information indicated that it would lend itself toward the development of many concepts. The most important concepts listed by the evaluators were that water and power resources are valuable ones to be developed, and that these resources are vitally needed in our present day economy.

TABLE VII

A SUMMARY OF EVALUATIONS MADE BY TWO TEACHERS WHO USED THE MODESTO
IRRIGATION DISTRICT AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation		1	1		
2. Presentation of facts		2			
3. Development of concepts		1	1		
4. Development of attitudes	1	1			
5. Acquaintance with community		2			
6. Achievement of objectives		1	1		
7. Conservation services		2			
8. Availability in distance		2			
9. Adaptability to school program		2			
10. Safety factors			2		
11. Cooperation with schools	1	1			

The attitudes which may be developed from these and other concepts follows as indicated by the evaluators: the importance and value of forming water districts; the value and necessity of a spirit of cooperation and community effort in the forming of water districts; a change of attitude through the clarifying of misconceptions concerning the cost and control of the Cherry Valley and Greater Don Pedro Dams. The agency was rated superior in reference to providing opportunities for developing attitudes.

This agency was also rated superior in its efforts to help the schools achieve their stated educational objectives.

The size of the Modesto Irrigation District is rather small and all of the services mentioned are within the district itself. Therefore, these services are easily accessible to the schools wishing to make use of them. The furthest any school had to travel for an excursion was fifteen miles. This distance would require approximately one-half hour of traveling time. Since the time required at the resources varied only from one to two hours, it could easily be used and fitted into most school programs regardless of the level, especially since the resource is available any time during the day within the five-day school week. The evaluators recommended these services for the

use of the high school and adult classes in the fields of agriculture, science, and electricity. These services would also lend themselves to the development of concepts in the elementary level. The District was rated superior for adapting its services to the school program.

The safety hazards encountered en route to the resource were the usual traffic hazards of rural intersections and railroad tracks commonly encountered by school buses. No difficulty was mentioned. Dangerous high voltage wires at the substation and deep swirling waters at the irrigation canals presented no difficulty for the reporting teachers. They had apparently alerted their students to the dangers and kept them from the dangerous zone.

The Modesto Irrigation District was rated exceptional for its cooperation and willingness to serve the schools. The exceptional rating may reflect not only the attitude of the agency personnel but also that of the teachers. It may also indicate that teachers cooperate well with others and therefore stimulate good relations with the resource personnel.

Oakdale Irrigation District. The Oakdale Irrigation District is the smallest district of the three being evaluated. However, included within this district is a

large acreage of expensive clover land which requires intensive irrigation. Both elementary and high school teachers have made use of this agency and have submitted evaluations.

The services used by the evaluating teachers include maps of the district, printed material on current reservoir project, resource visitors coming to the school, and excursions to the site of the dams under construction. These services and materials were rated superior by the teachers evaluating this phase, as shown by Table VIII.

Also rated superior was the ability of the personnel to present material on a level that elementary and high school students could understand. This evaluation is again interesting, since the age of the students ranged from the third grade in the elementary school through the senior class in the high school.

The evaluating teachers judged superior the ability of the personnel to present the facts as part of larger generalization rather than isolated bits of information. When presented in this manner, it is easier for the students to develop their own concepts. The following are examples: our water resources need to be developed in order to provide flood control and water for irrigation; dams and reservoirs are an important part of this program; rural people are part of a community made up of a people living

TABLE VIII

A SUMMARY OF EVALUATIONS MADE BY TWO TEACHERS WHO USED THE OAKDALE
IRRIGATION DISTRICT AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation		2			
2. Presentation of facts		2			
3. Development of concepts		2			
4. Development of attitudes		2			
5. Acquaintance with community		2			
6. Achievement of objectives		2			
7. Conservation services		2			
8. Availability in distance		2			
9. Adaptability to school program		2			
10. Safety factors			2		
11. Cooperation with schools	1	1			

on the same kind of land and growing the same kind of crops. Concepts such as these, to which our students are exposed, are quite valuable in forming a foundation for developing wholesome attitudes and helping the children achieve our objectives in education.

Some of the attitudes to which the students were exposed, and on which the agency was rated superior are the following attitudes: our water resources must be conserved and our land must be properly prepared if the people on the land are to prosper; we must cooperate with our neighbors since group action is necessary to accomplish large projects. The operation of such attitudes in the minds of the great pioneers of Stanislaus County is responsible for the tremendous development and control of water resources in this area.

Through the use of this resource agency, the students were allowed to become better acquainted with their community by knowing better the development of water resources and the future needs of the community, and by knowing about the people, and crops of their immediate area. The teachers gave a rating of superior to the agency for both its efforts in acquainting the students with the community and for assisting them to help achieve the educational objectives of the school.

The Oakdale Irrigation District and its operations is easily available and accessible to all the schools within the district. However, the dams under construction are approximately one hundred miles away, making it necessary to consume nearly one entire day for the excursion. This distance is not excessive, however, since the resource is available on Saturdays as well as all day during the school week.

The resource is rated as being adaptable for presentation to grades through three through high school and veterans' agriculture classes, for social studies, science, and agriculture. The adaptability of the services to the school program was rated superior.

Driving in the mountains to the dam site is the only hazard that might be met in going to the resource. However, no difficulty was reported either en route or at the dam site where rattlesnakes and large rocks from which the children might have fallen were in the vicinity.

The Oakdale Irrigation District was rated midway between exceptional and superior for the fine way in which it extended courtesy and cooperated with the schools making use of their services.

Turlock Irrigation District. Teachers of elementary, high school, and veterans' classes have used the Turlock

Irrigation District as a community resource. The Turlock District is the largest in Stanislaus County and takes the responsibility for conducting excursions to the La Grange and Don Pedro Dams which it owns in conjunction with the Modesto Irrigation District.

The services and materials used by the teachers include a chart of the flow of the river, a map of the district, a set of slides on the history of the Turlock Irrigation District and of the building of the La Grange and Don Pedro Dams, printed material on the irrigation district used for teacher background, excursions to La Grange Dam, Don Pedro Dam, and various places of the irrigation system, resource visitors who discussed the water development and conservation program of the district with special reference to Greater Don Pedro Dam. Since the agency was rated exceptional for their speakers, they have evidently done good work in interpreting the program of the district and its part in the conservation of the soil and water. The teachers gave them an average rating of superior for their other materials and services. Table IX gives a complete summary of teacher evaluations of the Turlock Irrigation District based on the established criteria.

TABLE IX

A SUMMARY OF EVALUATIONS MADE BY FOUR TEACHERS WHO USED THE TURLOCK
IRRIGATION DISTRICT AS A COMMUNITY RESOURCE

Criteria	R A T I N G S				
	Exceptional	Superior	Ordinary	Inferior	Very Poor
1. Level of presentation	1	3			
2. Presentation of facts	1	3			
3. Development of concepts		4			
4. Development of attitudes		4			
5. Acquaintance with community	1		1	2	
6. Achievement of objectives	1	2	1		
7. Conservation services		3		1	
8. Availability in distance			4		
9. Adaptability to school program		4			
10. Safety factors			4		
11. Cooperation with schools	2	2			

Even though the resource was used in several different ways from the third grade through high school and veterans' classes a very consistent rating of superior or better was given for the agencies presenting the material on a level that the students understood.

The rating of superior or better was also given for the proper organization of material and presenting it in such a way that wholesome concepts were developed. Opportunities for the development of the following concepts were listed: natural resources belonged to all of the people; electricity is made from water falling from a dam; water is used to irrigate dry land; water is conserved and land made productive through the development of water resources; the water supply of Stanislaus County was developed through the construction of dams and reservoirs; a larger reservoir is needed for water on the Tuolumne River if enough water for irrigation is to be saved and if proper flood control measures are to be put in force.

The development of concepts such as these again leads to the formation of attitudes, the predeterminers of important action necessary to conserve our resources. Opportunity for developing the following attitudes was listed by the evaluating teachers: since the natural resources belong to all of the people, each of us has a

definite responsibility to conserve and wisely use them; we need to work together to develop our resources and to improve our own welfare; having pride in our local community; having a desire to prevent the intrusion of alkali in the soil; have a respect for other's rights; seeing the definite need for conserving water through proper use; seeing the need not to waste water when irrigating; understanding why water cannot be taken at just the time the farmer requests it.

The use of the resource allowed the students to become better acquainted with their community in the following ways: they learned that the source of the prosperity of the community was in the development of the water resources and in the construction of the dams; they were made aware that the problems, history, and the plans for future development of the district will continue to influence their community. The teachers assigned the average rating of ordinary for this phase of the program.

The agency was rated superior for its efforts to assist the schools in achieving their educational goals.

Conducting an excursion to the La Grange and Don Pedro Dams was limited to elementary schools and vocational agricultural classes which have rather flexible schedules. The dams are approximately forty miles from most of the schools on the west side and would require one to three

hour's traveling time each way. However, for most of the schools of the county one-half day would be ample time to take an excursion to either of the dams. The fact that the district personnel makes itself available to schools at all times of the day and week would make it readily accessible to any class finding it possible to devote a half day to the excursion.

The Turlock Irrigation District and its program was rated as being suitable for use from the third grade through high school and the veterans' agriculture classes in the subject areas of social studies, science, language arts, and agriculture. The district was rated superior for adapting its services to the school program.

The danger features encountered en route to the dams presented no difficulty. However, such things as narrow, winding, bumpy roads, and railroad crossings could present difficulty to future groups making the excursion. The features at the dam which the teachers needed to caution and protect the students from include steep precipices, poison oak, being frightened by cattle, large machinery in the power house, falling in water from or near the dam. No difficulties were reported.

The Turlock Irrigation District was rated midway between superior and exceptional for its cooperation with the school and its program.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

The conservation of our natural resources is a vital concern to the entire nation. The education of our children, the future leaders and citizens of tomorrow, to respect and wisely use these resources is of equal importance. To make use of various community agencies that have done much research and taken the lead in the field of conserving our natural resources and in the field of conservation education, is a critical link in the chain of that educational program.

A great deal has been started in the field of conservation education, but the ground has barely been broken. It is well known that education in this area is spotty and spasmodic. The methods used by schools in educating for wise utilization of natural resources and in using community agencies to achieve their goals need to be greatly improved and extended.

It is not the purpose here to set forth a complete discussion of conservation education or the utilization of community resources, but the following conclusions and recommendations that have come out of this study may serve as a point of inception for further work. One set of

criteria could not possibly work for each individual school. In spite of the great similarity existing between the schools of Stanislaus County, there are also great differences. Factors contributing to these differences include the autonomy of the local school district, varying philosophies of administration and supervision, differences in sizes of schools and classes, and individual differences in pupils and teachers. As a result, each individual school unit must work out its own program of conservation education and use of community resources.

I. CONCLUSIONS

As a result of the interviews with teachers who have evaluated certain community agencies which they use in their conservation education program, and from the use of resource materials the following conclusions have been reached.

1. The resource agencies of Stanislaus County and their personnel are eager to assist the schools and cooperate with them in their program of conservation education by making available to the schools many services and materials. Not one instance of an agency being unwilling to cooperate with the schools was reported. In addition, there are several reports in which different agencies made special efforts to provide services which they did not

usually render and to acquire materials for the schools which they did not normally have.

2. The use of community resource agencies helps teachers and students achieve objectives of education. By reaching out into the community sources of information and inspiration are utilized which supplement the regular sources found in the classroom. Teachers unanimously reported that the use of these resource agencies assisted students to help identify and live up to their civic responsibilities, to work better with other students, to learn to work more efficiently and effectively, and to better realize their own individual abilities, capacities, and ambitions.

3. Resource agencies provided many opportunities for the development of concepts and attitudes in the students in the classes who made use of the agencies. Concepts very often exist only in the minds of the teachers who feel they are transferring the concept to the mind of the student if they merely tell them about several different facets of the problem. However, there is evidence to indicate that telling alone is not sufficient. The reports of the teachers indicate that seeing things happen first hand is a tremendous help in developing concepts in the students. When properly presented, wholesome attitudes

follow the formation of concepts in the minds of the students. Since attitudes are pre-determiners of action, they are a vital link in the program of conservation education, and in conserving and wisely utilizing natural resources. The evaluating teachers reported that many opportunities for developing attitudes was presented through the use of these community resource agencies.

4. The use of community resource agencies helps students become better acquainted with their community.

By taking excursions and listening to resource visitors from various agencies within the community, students have an ideal opportunity to become better acquainted with their community. Becoming better acquainted with the community helps fulfill one of the fundamental objectives of education: that each individual be adjusted to and assimilated into his total environment.

5. The personnel of the resource agencies used is versatile in their ability to present material which is understandable to students representing a wide range of age and grade levels. The fact that many of the resource agency personnel presented material in such a way that concepts were developed and attitudes stimulated in students from the third grade up through the high school and veterans' classes is ample evidence that this is true. When agency

personnel is able to present material acceptable to any age or grade level, it makes that resource much more valuable to the conservation education program of the schools.

6. Teachers are aware of and take advantage of opportunities to teach attitudes while using resource agencies. Unless teachers capitalize on the opportunities to teach attitudes while using the resource, and then follow up in their subsequent classroom activities, the efforts of the resource agency personnel are not used to good advantage. As previously stated in Chapter VI, the interviews with some of the evaluating teachers brought out their careful attention to developing attitudes.

7. The teachers using the community resource agencies which were evaluated are making adequate preparations with the students and are discussing goals with the resource people. In making evaluations of the resource agencies teachers many times reveal their own teaching methods. The teachers indicated in more than one instance that the results reported could not have been obtained had not adequate preparations with the students in relation to arrangements, safety factors, clothing, et cetera, been made.

8. Evaluating a resource agency assists teachers to evaluate their own use of the agency. The most important

phase of any procedure is the evaluation of that procedure is the evaluation of that procedure and making significant changes to correct errors in the procedure. During the interviews in which the teacher evaluated the agency many instances arose wherein teachers began evaluating their own procedures.

II. RECOMMENDATIONS

The recommendations set forth here have been evolved from the conclusions previously enumerated and from other phases of the study.

1. That the personnel of each school be made more aware of the need of conservation education which should be interrelated with each age level of every subject field in the entire educational program. The basis for accomplishing this objective would be to place various phases of conservation in every subject field and every grade level through the course of study which teachers follow in their regular classroom program. The second step would be for elementary and secondary consultants to guide teachers in their selection of materials and resources which would help develop the essential concepts pertinent to conservation education. The third step would be continual evaluation and revision of the program to achieve the new objectives set up.

2. To make the school personnel more aware of what community resource agencies are available and what services and materials they could furnish which would assist in the conservation education program. A revision of the bulletin "Community Resources in Stanislaus County,"¹ including additional agencies useful in conservation education, would be helpful to teachers. School administrators and county consultants would play an important part in this phase of the program by bringing the bulletin to the attention of teachers and advising them in the selection of agencies to be used.

3. In order for schools to make more effective use of community resources in conservation education school administrators should set up administrative procedures which would facilitate their use. Even though the risk of children being injured en route or at the resource agency is very limited, a special clause should be added in the insurance policy which would provide compensation for any injuries during an excursion. In schools where bus transportation is regularly provided, transportation to resource agencies should be by bus. Transportation by bus is safer, more economical, cheaper, and facilitates accounting for

¹Cf. ante, p. 17.

students. The administrator should provide an application form which each teacher would fill out to apply for the use of transportation and other features of an excursion. In this way the administrator is assured proper preparations have been made and proper precautions taken by the teacher. The daily schedule at both the elementary and high school level should be arranged so that individual classes can make excursions requiring up to one-half a day. It has been noted that more classes make use of community resources where similar administrative procedures have been established.

4. Teachers should be assisted to become more proficient in the use of community resource agencies. Part of the assistance may come from a listing of suggestions compiled into a booklet entitled "field trips" which was published by the audio-visual section of the Stanislaus County Schools Office in 1950. The booklet includes suggestions to the teacher for planning the excursions, planning with the preparing students for the excursion, conducting the excursion, and the activities following the excursion. The most important factor of giving assistance to the teacher is the close cooperation of the elementary or secondary consultant and the teacher to integrate every phase of the use of the resource agency into the activities of the regular classroom program.

5. A method of continuous evaluation of the use of community resource agencies in the conservation education program of the schools of Stanislaus County should be evolved. It is suggested that the Evaluation Bureau of the State Department of Education be invited to assist in the formulation of criteria for the evaluation of progress in the field of conservation education. Factors to be considered in drawing up this revised measure for evaluation would be the evaluation of the agency itself, an evaluation of the school use of the agency, and an evaluation of the effectiveness of the conservation education program in the schools of Stanislaus County.

If the soil and water resources which are the life blood of the Stanislaus County economy are to be wisely utilized and passed on intact to the next generation, an intense effort must be made to develop a more effective program of conservation education. A concerted effort on the part of all school personnel is required. Those planning the curriculum need to include conservation education in the courses of study and give teachers positive assistance in integrating conservation education into the classroom program; administrators and teachers need to work together to improve their conservation education program, its operation and evaluation. Continuous evaluation and revision of the entire conservation education

program is imperative if it is to prepare the leaders of tomorrow for the problems which will confront them by giving them a clear understanding of these problems and by giving them the inspiration and will to solve them.

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APPENDIX A

AGENCY SURVEY SHEET

Agency _____ Informant _____ Date _____

I. Factual Description

A. History of formation _____

1. Affiliation _____

B. Present Function _____

C. Location _____

D. Area Served (Map) _____

E. Personnel

1. Number _____

2. Job Classification _____

II. Service Available to Schools

A. Charts or Maps _____

B. Excursions (Describe) _____
_____C. Field Trips or Slides (List) _____

D. Models _____

E. Motion Pictures (List) _____

F. Posters (List) _____
(Samples)G. Printed Matter (List) _____

H. Resource Visitor _____

I. Other Services _____

APPENDIX B

EVALUATION SCALE FOR COMMUNITY RESOURCES

Page 2

	Exceptional	Superior	Ordinary	Inferior	Very Poor
IV. Adaptability to the school program					
A. Material presented is adaptable to what--					
1. Grade level _____					
2. School subjects _____					
3. Unit of work _____					
B. Time required _____					
C. Time of day resource is available _____					
D. Days of week resource is available _____					
V. Safety factors					
A. Safety hazards to be encountered en route _____					

B. Safety hazards to be encountered at resource _____					

VI. Cooperation with school					
A. Courtesy displayed _____					
B. Extent of sympathy with school program _____					
C. Willingness to serve schools _____					

APPENDIX C

LETTER SENT TO PRINCIPALS

Modesto, California
October 8, 1952

Dear Consultant:
Principal:

It would be a tremendous help to me in completing my study for the Master's Degree if you would check with your teachers and return to me as soon as possible the information indicated below regarding the use made, or to be made, this school year of the following community agencies:

1. Agricultural Extension Service, Post Office
Basement, Modesto.
2. Agricultural Conservation Association,
1207 K Street, Modesto.
3. Central Valley Project and/or Tracy Pumping Plant
4. Modesto Irrigation District and/or Don Pedro or
La Grange Dam.
5. Oakdale Irrigation District.
6. Turlock Irrigation District and/or Don Pedro or
La Grande Dam.
7. Waterford Irrigation District.
8. West Side Irrigation District.
9. Stanislaus County Agricultural Commissioner,
416 - 15th Street, Modesto.
10. Stanislaus County Farm Bureau,
1205 K Street, Modesto.
11. Stanislaus National Forest Service,
Headquarters in Sonora.
12. State Division of Water Resources,
North 99 Highway, Modesto.

Please indicate the teachers who have used or will use any of the above agencies for a field trip, speakers or resource person, or for obtaining various kinds of resource materials such as literature, pictures, films, records, etc.

<u>School</u>	<u>Teacher</u>	<u>Agency Used (by number)</u>	<u>How Used</u>	<u>Approximate Date</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

With your permission I would like to ask each teacher to briefly evaluate the agencies used.

Thank you for your cooperation.

Very truly yours,

Harold Francis