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**ANNUAL REPORT TO THE STATE BOARD OF EDUCATION  
ON THE  
PROGRESS OF THE CALIFORNIA POLYTECHNIC SCHOOL  
SAN LUIS OBISPO, CALIFORNIA**

**JANUARY, 1940**

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ANNUAL REPORT TO THE STATE BOARD OF EDUCATION ON THE PROGRESS OF THE CALIFORNIA POLYTECHNIC SCHOOL, SAN LUIS OBISPO, CALIFORNIA -- JANUARY, 1940

FOREWORD: This is the sixth annual report of this type, and one which again shows tremendous physical and educational development at the state's technical college. For those who care to make comparisons with reports of previous years, the same index headings are used in this report, with minor variations for outstanding new developments. Considerable detail is given here, especially for the information of new members of the State Board of Education and others who read this report, who are not entirely familiar with the history and present scope of this state college.

I. HISTORY

Each annual report has touched upon the history of the California Polytechnic School, bringing the chronology up to date and touching upon certain past phases most pertinent to the particular developments of the current preceding year. This section of the report deals historically with past climaxes or crises.

The year of 1939 may be characterized as a "crisis" year in the history of this state technical college -- a crisis period because having arrived at what might be considered majority, or an adult collegiate status after having been for decades either a secondary school or on the fringes of it, the institution needs further encouragement rather than discouragement. With the greatest issue in the history of the institution now before the State Board of Education -- whether outstanding men who complete a four-year technical college course shall receive the same collegiate degree they would have received with a similar amount of time and study at other institutions administered by the State Board of Education -- the history and other phases of the report must frequently touch upon this factor.

California Polytechnic School has passed through many crises in its nearly 40 years of existence. The very fact that for many years what was then a state technical high school survived in a world of academic and college preparatory secondary education, meant that it had the substance and purpose which brought it

through period after period of legislative budget apportionment.

From 1901 when the institution was established, until about 1923, the crises were principally financial. During that period, employers of its graduates were generally satisfied with brains and brawn, and cared little for the documentary evidence. The school filled a unique place in the state, where most secondary education was non-vocational in nature. In 1923, the post-war economy period almost wrecked the very essence of the school. Budget slashing necessitated the sale of quantities of livestock, the very presence of which for training youths in animal husbandry operations was fundamental to the institution. Enrollment dropped below 100 -- a sorry situation in a state of several million persons. But the school weathered this crisis, re-established its flocks and herds, and continued until 1933, when a similar economy program was instituted.

At that time, however, the crisis was met in a different fashion. Instead of curbing opportunity, the State Department of Education began to expand it by placing at California Polytechnic the headquarters for the entire vocational agriculture program of the state. Courses of high school level gave way to courses of technical college level. Young, virile faculty personnel was brought in. Service work was established for the state vocational program in the district secondary schools, and contacts were developed which brought attention of prospective students to the institution. All this was done with a very limited budget.

Again, with the crisis of 1933, the enrollment had dropped to a low point, but with the re-dedication of the college to occupational training on a higher level, and with the fine spirit engendered by the new faculty and administrative regime, a solid development began, both in physical plant and in its fine student body.

Since about 1930, parents whose boys were attending California Polytechnic School had asked "Why do you limit your work to three years, and curtail the opportunity of my son to get a technical position which requires a bachelor of

science degree?" Heads of farm organizations, prospective employers, state legislators, college presidents from other states, were asking the same question.

The crisis incidental to answering this demand was postponed for several years by a sincere effort of attempting to work out a transfer plan with existing state institutions, whereby the student could go to the Polytechnic college for his technical training, for which no other institution in the West is better equipped; and transfer to a conventional degree-granting institution for one year to receive his degree.

The plan was not successful for two reasons. One was that no other college in California has an undergraduate pattern sufficiently similar to California Polytechnic's to permit transfer. Another was that the student who had come to know the faculty, his classmates and his Alma Mater, wanted to be, and be known as, a graduate of California Polytechnic and not an alumnus of some other institution. At the same time, many boys who did transfer to Agricultural and Mechanics Arts type colleges in other states, completed their degree requirements without loss of time or credit, thoroughly establishing the fact that although California Polytechnic college approached the educational problems of agriculture and industry from the standpoint of skills and operations, rather than the standpoint of administration and research, Polytechnic graduates were able to stand up with the other students in every way scholastically, and be graduated with honors.

The crisis of 1939, then, to which this brief history leads, is that the thoughts of the 700 students and the faculty members, are "pointed" toward this goal. Those who have studied the plan believe that it is sound educationally, and that the only opposition is political and economic, rather than pedagogical.

Although no assurance has ever been given that this goal will be attained, if it is not reached a profound depression will result on the campuses of the California Polytechnic School, and the psychological result may be a blow which will take years to recover. This would indeed be a serious situation. The

progress of California Polytechnic School has been steady, and has achieved nationwide interest, since the State Department of Education took over the direct administration of the technical college in 1933. To have this growth and interest retarded at this time when youth needs every encouragement to prepare himself for a definite occupation, would be a tragic blow.

While the degree resolution will be discussed again later in "Future Needs", it is important to call attention at the beginning of this report, to the fact that each year, more and more employers are demanding the bachelor of science degree, or attendance at a degree-granting institution, as a pre-requisite for employment.

It is important to know that the students at California Polytechnic now receive the technical content of a four-year degree course at Oregon State, Iowa State, Oklahoma A. & M., and other colleges of this type, and lack only some social and physical science. Little faculty or curricula expansion or change will be necessary to round out one more year of work leading to this degree.

It is interesting and vital to know that in the opinion of legal authority, and in the words of the state law, the development of California Polytechnic was to have paralleled the development of the other colleges administered by the State Board of Education. These institutions, too, passed through changes -- from high school level to normal schools, to four-year teacher colleges, and to regional colleges of general nature. California Polytechnic School has experienced exactly the same needs for educational advancement, and now seeks only the same baccalaureate goal.

Last, it is emphasized most clearly that the function of the California Polytechnic School -- training for employment -- will be maintained to the fullest degree. Both the present and the contemplated curricula are set up primarily for the young man who goes only two or three years. Whenever he leaves, he will have had the maximum amount of "doing" education leading to employment. For the comparatively small number who complete the four-year course,

the goal will only be that document which in the minds of a prospective employer makes that graduate eligible for hiring.

## II. THE VOORHIS UNIT

In August, 1938, a completely-equipped school and farm near San Dimas, admirably situated and adaptable for the technical instruction in citriculture, deciduous fruit production and agricultural inspection, was deeded to the California Polytechnic School by its owners, Charles B. Voorhis of Pasadena, and his son, Congressman Jerry Voorhis. This magnificent gift to practical education was immediately put to use as an integral part of the main institution, being operated as a plant industries department of the institution.

Statistically, it is treated as a part of the San Luis Obispo home campus, with its enrollment, student labor, placement and other data included in a single statement. It deserves some additional mention here in terms of its project program and particular service features.

The plant consists of an administration building, classroom buildings, beautiful library and non-sectarian chapel, dormitories, faculty homes, shop facilities, an infirmary and other units. There is an attractively-landscaped campus, and considerable planting.

During the last year, a landscaping major has been added, and crops work expanded.

The Voorhis Unit student body has its own governing body, with a full program of social activities, entertainment and minor athletics. No football is played at the San Dimas unit.

### Fruit Projects

Because of the difficulty of operating individual horticultural projects on a commercial scale, the Voorhis Unit consisting of 25 acres of citrus, 5 acres of avocados, 3 acres of deciduous fruits, including walnuts and  $1\frac{1}{2}$  acres of grapes, is being used as a group student project. That is, each department head is responsible for the operation of the part of the unit falling within

his field, and the work is done by students under his supervision. In this way all of the students have the opportunity to participate actively in all of the operations commercially practiced in the production of the commodities in which they are interested.

In addition to the practices or skills developed during regular laboratory periods, the advanced students take care of all cultural, harvest and pest control activities on the grounds and orchards outside of school hours. For this they are paid from student labor funds. This past year an average of 50 students were on the monthly payroll with approximately \$12.50 as the average monthly income from this work. This is of material assistance to these students, as many of them are partly or wholly self-supporting while procuring their educational training.

Further experience is obtained in cooperation with county and state departments interested in pest, weed and rodent control. School credit is also given for work in both production and inspection fields done by students under commercial conditions for private or corporate organizations. This latter work is with previous agreement by, and under supervision of, the instructor handling that phase of instruction.

#### Enrollment

Approximately 100 students were enrolled at the Voorhis Unit at the beginning of the winter quarter. In addition, a number of graduates employed in agricultural inspection work in the area, or in "apprentice" positions, were living on the campus and continuing to use library and laboratory facilities. It is believed that the peak registration would come close to the housing capacity of about 140 men.

Building needs at the Voorhis Unit are well cared for. A gymnasium for physical education, student assemblies, dances and other activities requiring an extensive floor space, is the principal immediate need.

Present plans call for the further utilization of some available acreage to expand the deciduous fruits to provide further laboratory facilities in that field.

### III. COORDINATION OF PLANT INDUSTRIES ACTIVITIES

For many years, the work in the animal industries fields at the San Luis Obispo campus of the California Polytechnic School was unified and closely coordinated with the animal production of the state. The plant industries field, on the other hand, developed in various forms at different times and on different campuses.

The necessity for drawing the various phases of plant industry into an integrated whole parallel to the animal science units, became evident during the current year.

A prime factor in the need for coordinating the plant industry program, was the sudden acquisition of the Voorhis Unit at San Dimas. It was necessary to bodily move much of the plant industry which had been taught at San Luis Obispo, to the Voorhis Unit at San Dimas and to immediately begin classwork.

The chronology of the plant industry curricula is about as follows:

Prior to 1932, landscaping had been taught as an occupational course on the trade level, emphasizing the fields of plant identification and minor propagation. In 1932, landscaping was definitely set up as a technical course and rapidly advanced to college level.

In 1936, an agricultural inspection major was first offered to train men for the numerous state and county inspection positions.

In 1937, emphasis began to be placed, and courses established, in deciduous fruit production, to train employers and producers in this field in addition to the inspectional features.

In 1938, with the addition of the Voorhis Unit, inspection work, as well as deciduous and citrus fruits, was shifted to San Dimas. At the same time, it was felt necessary to retain service courses in tree fruits at San Luis Obispo where considerable plantings had been established, to provide a minor field for students planning to major in other agricultural enterprises.

In 1939, the landscape work at San Luis Obispo was extended to a parallel course at San Dimas, and at the same time crops work was brought to a more secure

basis at San Luis Obispo with the employment of an outstanding faculty member.

During the period of growth, courses were added only after surveys indicated actual need, but problems occurred as might be expected in terms of land distribution, economical use of equipment, placement of graduates, possible new curricula, best location for courses and personnel, and assignments and course content. These needed group attention.

One individual was named plant industry coordinator, to centralize the thinking and planning of this group, under the supervision of the dean of agriculture and the president.

A meeting was called just before the end of the year, and two days were spent in discussing various means of bringing the "loose ends" together. As a result of the conference, the group is making the following:

1. Surveys to determine the effectiveness of the present curricula.
2. Surveys to determine merits of possible new curricula for which a need has been expressed.
3. Studies to determine on which campus certain courses may best be offered.

4. Studies to evolve more efficient use of travel funds in contacting the trade for placement, laboratory materials, field trips, etc.

5. Studies to recommend the best use of land and facilities for instruction.

The group clearly defined its purpose, and the coordination of the plant industries units is being expected to have a definite part in further developing this most rapidly-expanding field.

#### IV. LOAN FUNDS

The Leopold Edward Wrasse Loan Fund (major loan fund existing) started to function during the last year. The \$25,000 given by the elderly San Joaquin rancher is being held in trust and the interest used in making loans to needy students. The first amount of \$237.50 which was turned over in September is

being utilized now, and another amount of \$312.50, which will be available soon, will help to realize the need which has been existing in the past. This fund, together with the Faculty Women's Loan Fund and the Rotary Club Loan Fund, helps to set the "financial lifeguards" on a more substantial basis. The need at the present time is for a fund to be set up which will make it possible to make petty loans to students in sums of less than \$25.00. Very frequently it becomes necessary for students to secure small, temporary loans to purchase books, to buy some necessities such as clothing or to finance a trip to his home when called suddenly on account of illness or death in a family.

V. THE BUDGET

In considering the budget for the 91st fiscal year, as compared with the previous year, we find the following to be true: Proposed expenditures for the present fiscal year have increased 5.4 percent, while student enrollment has increased 10 percent. The expenditures are listed as follows:

	<u>90th Fiscal Year</u>	<u>Per- cent</u>	<u>91st Fiscal Year</u>	<u>Per- cent</u>
Salaries and Wages	\$ 151,561.00	69	\$ 169,970.00	74
Materials and Supplies	29,659.00	14	29,975.00	13
Service and Expense	19,278.00	9	19,342.00	8
Property and Equipment	<u>17,681.00</u>	<u>8</u>	<u>11,541.00</u>	<u>5</u>
	<u>\$ 218,179.00</u>	<u>100</u>	<u>\$ 230,828.00</u>	<u>100</u>

The budgeted amount for salaries and wages covers the salaries of 43 faculty members and administrators, 14 office workers, 3 herdsmen and farm foremen, three men in maintenance and operation, 11 laborers in incidental campus improvement work, and an average of 125 students employed in minor part-time jobs on the campus.

In looking over the budget figures, the increase for the 91st fiscal year of \$18,409.00 in Salaries and Wages has come about as follows:

Salary adjustments account for one-third of this amount.

Two positions set up at the Voorhis Unit in the 90th fiscal year, but not filled.

Position of one new account clerk set up to take care of property records.

Set up one new position in agricultural instruction in San Luis Obispo.

Set up one new position in related subjects instruction in San Luis Obispo.

Set up one position in agricultural instruction at the Voorhis Unit.

The per pupil cost for the past two years divided by the total enrollment shows that the cost is gradually decreasing with the added facilities.

Per pupil cost 90th fiscal year (January 1, 1939), \$218,179.00, divided by 675 students -- \$323.23.

Per pupil cost 91st fiscal year (January 4, 1940), \$230,828.00, divided by 737 students -- \$313.20.

Using the enrollment as of January 4, 1940 as a basis, and determining the equivalent full time registration by allowing one unit of registration for each 15 units of instruction for which students are registered, we find the following: Pupil cost per equivalent full time registration 91st fiscal year, \$230,828.00, divided by 866.5 -- \$266.38.

In submitting costs of operation of a plant such as the California Polytechnic, it must be considered that instruction on a vocational and technical basis must be on an individual basis. A student learns skills by doing. As a result, more equipment, housing, and personnel is required than in a traditional academic college. Instead of regimentation of large groups in large classes, which is possible in fields of history, social science and other cultural courses, students need to be instructed in small units. It is necessary for a student to participate in the experience of learning by doing in the shops, the school farm, and school grounds. Likewise, equipment is necessary of such make and condition as a student will have when he goes out on a job. In spite of this extra cost, when we consider that the cost of \$313.20 for each student enrolled, or the equivalent cost of \$266.38 based on the 15 units carried, we find that education is rendered to the

student on an economic basis. Experience the past few years has indicated that this per pupil cost is decreasing with the increased enrollment which has jumped 10 per cent during the past year.

VI. ENROLLMENT

The increase from an enrollment of 219 on January 3, 1935, to 737 on January 4, 1940, shows that the Polytechnic has come a long way in the last 5 years. This increase of 518 amounts to 336 percent over the five year period, or an average increase of 85 percent each year, using the 1935 enrollment as a base figure. This average means an increase of 120 students yearly.

This increase is not due to the fact that students attend the institution in order that they may secure a smattering of facts or a place they may spend some time when no jobs are available. Rather, each student has enrolled for a very definite purpose, namely in order to acquire vocational and technical skills so that he may go out into employment.

California Polytechnic serves students from 50 of the state's 58 counties. The enrollment from 24 counties has increased over that of the previous year.

COMPARATIVE SUMMARY OF REGISTRATION, CALIFORNIA POLYTECHNIC SCHOOL, SAN LUIS OBISPO

<u>County</u>	<u>January 3, 1939</u>	<u>January 4, 1940</u>	<u>Loss or Gain</u>
Alameda	12	23	+
Amador	1	2	+
Butte	4	6	+
Colusa	7	3	-
Contra Costa	3	15	+
Fresno	29	24	-
Glenn	8	6	-
Humboldt	7	7	=
Imperial	8	4	-
Inyo	2	2	=
Kern	9	17	+
Kings	7	6	-
Lake	1	3	+
Los Angeles	157	185	+
Madera	5	6	+
Marin	3	3	=
Mendocino	3	5	+
Merced	17	15	-
Modoc	3	4	+
Monterey	9	6	-
Napa	5	0	-
Nevada	0	1	+
Orange	30	25	-
Placer	0	1	+
Riverside	16	24	+
Sacramento	4	9	+
San Benito	1	0	-
San Bernardino	21	34	+
San Diego	33	24	-
San Francisco	4	14	+
San Joaquin	14	19	+
San Luis Obispo	70	84	+
San Mateo	1	2	+
Santa Barbara	24	25	+
Santa Clara	16	15	-
Santa Cruz	9	9	=
Siskiyou	5	4	-
Shasta	1	0	-
Solano	6	2	-
Sonoma	18	10	-
Stanislaus	22	24	+
Sutter	3	1	-
Tehama	9	2	-
Trinity	0	1	+
Tuolumne	3	0	-
Tulare	18	15	-
Ventura	12	11	-
Yolo	9	4	-
Yuba	2	6	+
Other States and Countries	24	29	+

The previous table represents the total number of different students registered. When placed on the same basis as that used to compute one unit of enrollment at the state regional colleges, the student enrollment at California Polytechnic School is sharply increased.

The figure used by many other colleges is one unit of enrollment for each 15 units of work taken. This is important where many individuals are attending only one or two classes per day, or evening classes only. However, California Polytechnic School students are all carrying full-time loads, and based on averages compiled for a representative group, it is shown that the enrollment per 15 units of credit is 866.5. This is tabulated as follows:

	<u>Actual Enrollment</u>	<u>Average Units</u>	<u>Equivalent on 15-unit basis</u>
Agriculture	425	17.0	481.7
Industry	<u>312</u>	18.5	<u>384.8</u>
Totals	737		866.5

Considerable difference is noted in the average units as between students majoring in agriculture, and those majoring in industrial fields. The agriculture student in addition to time spent in classes for which he is actually enrolled, is in addition putting in many hours per week on his own project, for which no formal credit is granted.

The number of units carried by industrial engineering students is maintained at a high average level because of the aeronautics industries division, where students must fulfill pupil-hour requirements of the U. S. Bureau of Air Commerce for license examinations, as well as cover much specified ground in technical courses and laboratory practice. In general, both groups actually spend virtually the entire day from early morning until the dinner hour.

## VII. BUILDING PROGRAM

Progress has been rapid during the past year in the building program. One major permanent industrial building is 50 percent completed, the six small dormitories mentioned in last year's report have been completed, and a new sheep unit is practically finished.

The new air conditioning building containing 14,000 square feet of floor space will fill a long-felt need in the industrial department. It will provide classrooms, drafting rooms, and laboratory space for the air conditioning department; classrooms and drafting rooms for the electric department; and an auditorium with a seating capacity of 450 students.

The six new dormitories serve a vital need in providing lodging for 72 students near their animal project work, which in many instances involves extremely early and late hours of work. This added space helped but by no means solved the housing shortage experienced during the first quarter of the present school year.

The new sheep unit will, when complete, give the meat animals department for the first time adequate housing space for the school breeding flock and student feeder projects.

A contract for \$14,255.00 has been entered into with the State Division of Highways to build new roads on the campus and farm, resurface existing roads, and construct parking areas near the dormitories and classrooms.

In addition, a number of additions and betterments projects have been completed during the past year. Included in the list are: fencing the feed lots around the Parker barn; landscaping the west entrance to the campus, the six new dormitories, and the area west of the Administration building; building a sawdust house at the hog unit; constructing two permanent laying and brooding houses and six portable laying houses for the poultry department; and building a new lath house and storage space for the landscape department.

#### VIII. PROJECT OPERATION

Operation of the various individual and group student projects is one of the most important single functions of the California Polytechnic School, since this work is the basis of all instruction. Self-owned projects are combined with managerial projects to give students a combination of manipulative skills and scientific background unequaled in any other public institution in the country.

Projects are classified as follows:

**Livestock:**

- a. Student-owned projects in market livestock
- b. Student-owned projects in dairy cattle
- c. Student-operated projects in dairy cattle

**Poultry:**

- a. Student-owned laying projects off the campus
- b. Student-operated project of school laying flock
- c. Student-owned brooding projects on campus
- d. Student-operated turkey fattening project

**Crops:**

- a. Student-operated crops projects off campus

**Fruit:**

- a. Student-operated project of all school-owned and leased orchards and vineyards

**Industrial:**

- a. Student-owned projects in aeronautics repair
- b. Student-operated projects in aeronautics repair
- c. Student-operated projects in electrical installation
- d. Student-operated projects in power plant operation
- e. Student-operated projects in air-conditioning installation

**AGRICULTURAL PROJECTS**

Market Livestock

During 1939 the 150 boys enrolled in the meat animals department owned, fed out, and sold market livestock as indicated in the accompanying table:

Number of projects carried	Beef	Sheep	Hogs
Feeder stock	47	12	45
Breeding stock			9
Number of students participating	102	26	58
Number of livestock involved	149	69	467
Number of animals sold	97	69	458
Pounds of product sold	98,000	7,320	95,264
Gross income from sales	\$ 11,863.40	\$ 728.00	\$ 7,621.12
Expense	9,703.00	602.00	6,515.00
Profit	2,160.00	126.00	1,005.12
Average pounds of concentrate to produce one pound of gain	6.8	4.1	4.65
Average pounds of roughage to produce one pound of gain	3.5	4.2	
Cost per 100 pounds of gain	\$ 10.21	\$ 7.25	\$ 5.35

Highlights of the Project Year

Skill acquired by students in project work, enabled them to achieve the following outstanding record exhibiting in open classes at major shows and fairs and in the advanced division at the Interstate Junior Livestock Show:

Great Western Livestock Show - Los Angeles  
(open classes)

Grand champion carlot of steers  
Grand champion pen of lambs  
Reserve grand champion steer  
Champion Hereford, Shorthorn and  
Aberdeen Angus steers

State Fair  
(open classes)

Grand champion steer  
Champion Shorthorn steer  
Champion Hereford steer  
First place cattle carcass class  
on hoof  
First place cattle carcass class  
dressed

Interstate Junior Livestock Show - San Francisco  
(advanced division)

Champion Shorthorn  
Champion Aberdeen Angus

Besides these awards, the animals exhibited won many more places, which netted the following total prize money:

Interstate Junior Livestock Show	\$ 425.00
Treasure Island . . . . .	140.00
Great Western Livestock Show . .	897.00
State Fair. . . . .	383.00
Los Angeles County Fair . . . .	260.00
Total	\$ 2,105.00

During this year three off-campus hog projects were started, involving six sows and 50 pigs. Students rented facilities on a nearby farm.

From the breeding stock owned by the project fund 25 boars, 25 gilts, and 15 rams were sold to Future Farmer members studying vocational agriculture in the high schools of the state. Additional steers also were bought for high school students, with Polytechnic acting merely as purchasing agent.

Dairy Cattle

An average of 45 students was enrolled in the dairy cattle department. Fourteen of them owned 44 head of high-quality dairy stock that they kept to help pay school expenses and to use for herd foundations. More than 90 percent of the students enrolled worked part time operating the entire dairy unit. At the close of last school year every student found employment who desired it. During the last year student-owned animals made net monthly earnings of \$200. Each month dairy students earned \$400 on the dairy project fund payroll, \$85 on the NYA payroll, and \$80 on the state payroll. The total monthly earning was \$765.

The school maintained a breeding herd of 110 dairy animals in addition to those owned by students. During the past year the 60 milking cows at the school dairy averaged 444 pounds of butterfat each. This is the highest average in the county during the last ten years, and perhaps in the history of the region. The state average per cow per year is 250 pounds of butterfat. One cow in the school herd produced more than 800 pounds of butterfat during the year, two made more than 700 pounds, and several produced more than 600 pounds.

Dairy animals from the school were exhibited at the California State Fair, Los Angeles County Fair, and the National Dairy Show. These cattle won \$1000 in premium money, which paid the exhibition expenses. In addition the students handling the animals made beneficial contacts and gained valuable experience. The awards gave much favorable publicity to the school. The cattle won two grand championships, four first prizes, and numerous other honors. One Holstein bull was nominated for All-American honors. Two animals were loaned to the Dairyland exhibit at Treasure Island for four months.

The Polytechnic project fund again leased the dairy unit from the state and operated it as a student-supervised practice project. In addition the school dairy department rented 120 acres for \$550 to raise feed. Students

were assigned individual animals from the school herd and were given the responsibility of feeding, milking, and caring for them on a share basis.

During the year the entire dairy herd produced more than 24,000 pounds of butterfat that sold for \$12,000. Forty-five dairy animals were sold for \$3,600, and 19 were purchased for \$1,600. The net total sales of products and cattle were \$14,000. Revenue from the dairy herd paid all operating expenses during the year in addition to its educational value.

### Poultry

The report on poultry projects conducted by 29 students in the poultry department for the year 1939 shows the following:

Laying projects . . . . .	21
Brooding projects (leghorn) . . . . .	21
Brooding projects (meat birds) . . . . .	6
Brooding projects (turkeys) . . . . .	3
Average number of laying hens . . . . .	2000
Number of meat birds (laying flock) . . . . .	300
Turkeys raised and sold	
Thanksgiving and Christmas. . . . .	400
Turkey breeders on hand, hens . . . . .	40
Turkey breeders on hand, toms . . . . .	5
Meat birds dressed and sold in	
retail channels . . . . .	3500
Breeding cockerels sold to Future	
Farmers and poultrymen . . . . .	185
Hatching eggs and chicks sold to	
Future Farmers . . . . .	\$ 3000
Number of eggs sold . . . . .	250,000
Hatching eggs sold. . . . .	50,000
Students' project-labor income and	
part-time labor income. . . . .	\$ 4100
Average monthly payroll from	
project fund. . . . .	\$ 160
Total project sales	\$ 13,360

During the year 780 pullets in the trapnests made the highest unculled production records in the history of the school, with an average production of 224.6 eggs per bird. Among these pullets were 18 with records above 300 eggs. The highest number of eggs produced was 328. Another production record was set when 61 percent of the pullets finished above 225 eggs.

All turkey poult's were produced from the school's turkey breeding flock this year for the first time. These poult's were of the improved broad-breasted type. During the past year a Barred Rock breeding flock of 300 birds and a small flock of Rhode Island Reds were added to the inventory.

#### Fruits

At the present time the following units on the San Luis Obispo campus are being cared for and maintained by the students:

12 $\frac{1}{2}$  acres of deciduous fruits  
1 acre of grapes, planted in cooperation with the  
viticulture department of the University of California  
2 acres of young citrus

The courses now given in fruit are practical units for those desiring to get a rounded farm training. Fruit project work is also discussed under the heading of "Voorhis Unit".

#### Crops

During 1939 two crop projects were started off the campus. The first of these consists of 15 acres of rented land near the school and is planted to oats and vetch hay. The second project consists of 18 acres of rented land located on the county hospital grounds. This land has also been planted to oats and vetch. This land was rented for \$15 and promises to produce an excellent crop, since it has been out of production for several years.

There is considerable interest in projects, and many others could have been started if land had been available. For the coming year it is planned to canvass early the land available for renting within a reasonable distance of the school. If the school is able to put most of its hay production on land other than the school farm, it will make available land for various field and truck crops.

In addition to the two crops enterprises conducted off the campus, all of the actual crop raising on the college's 1400-acre farm is done with

student labor and to a considerable extent, with the supervision of older students. This includes hay, grain and silage; green feed for poultry, and root vegetables for livestock.

Landscape

Number of students participating in projects .	31
Average monthly earning per student . . . . .	\$ 15
Number of ornamental trees planted on campus .	1000
Number of ornamental shrubs planted on campus.	1000
Number of ornamental trees and shrubs propagated in school nursery . . . . .	3000
Number of flats of ornamental annuals grown and planted on campus. . . . .	500
Number of acres of turf seeded . . . . .	1.5
Ornamental pot plants for glass house and lath house display . . . . .	200

This year has been largely devoted to rebuilding the nursery and restocking it. Plans have been laid out for the entire new establishment, and part of the work has been completed. Among the new additions are approximately two acres of terraced ground, the addition of sufficient areas to allow the planting of a "stock block", additional space for planting annual and perennial flowering plants, and new terraces to accommodate gallon can plants. At the present date there are approximately 3000 plants in gallon cans for spring planting, 400 flats of flowering and vegetable plants, and several hundred miscellaneous hothouse plants. All of the work of terracing has been done by the students under the guidance of the grounds and farm departments. All the planting and propagating has been done exclusively by boys of the department.

In addition to this nursery work all maintenance work on the campus is done either by the boys of the department or under their direct supervision. This work alone entails the services of from 15 to 25 youths a month.

Agricultural Mechanics

The agricultural mechanics work at California Polytechnic is definitely correlated with project work in the various departments. Each boy enrolled in agricultural mechanics who carried a project follows the mechanical activities associated with this project.

As an example, the student with a hog project learns how to plan repairs and construct feeding equipment, hog houses, watering devices, sanitary equipment, breeding, showing, farrowing, and all hog lot equipment. This same policy is carried out in connection with projects in each of the other departments.

In connection with crop and fruit projects emphasis is placed on farm machinery and irrigation. Students are taught how to handle equipment, how to make repairs, adjustments for the most efficient performance, lubrication, and care. In irrigation studies in connection with field crop, fruit, or landscaping projects or supervised practice, the student becomes familiar with the methods of measuring water, the basis for sale of water to farmers, and of pumps and pumping. Work in the mechanical side of project instruction is intensified by the fact that the student must pass certain tests in the operation of tractors and the handling of horses before he is given his certificate of graduation from the school.

Many mechanical projects were completed by the boys in this type of work. Possibly the completion of a new shelter shed for sheep was outstanding.

## INDUSTRIAL PROJECTS

### Aeronautics

Projects of aeronautics students include rebuilding airplanes, changing over obsolete models to modern types, and repairing wrecked ships. Often the latter job involves almost complete reconstruction, building entire fuselages, fabricating and covering wings, mounting engines, and overhauling engines. Following are statistics:

Number of students enrolled . . . . .	121
Number of planes completed . . . . .	none
Number in shop partly completed . . . .	8
Value of work done on planes to date.	\$ 1900
Number of planes to be completed	
this year . . . . . . . . . . . . .	8
Commercial engines overhauled . . . . .	3
Value of work done on engines . . . . .	\$ 1200

### Air Conditioning

The following data illustrate the type and value of project work carried on in the air conditioning department for 1939:

Number of students enrolled . . . . .	22
Construction of heating plant in	
egg house . . . . . . . . . . . . . . .	\$ 165
Construction of refrigerating coils,	
blowers, controls, and overhaul	
of condensing unit . . . . . . . . .	180
Additional work on coils . . . . . . .	90
Installed blower in aero sand blaster.	55
Installed blower in dark room . . . . .	55
Installed ducts, blower, motor, and	
washer system in feed barn . . . . .	255
Built heater in sheet metal shop . . . .	85
Installed heaters in glass houses . . .	160
Installed blower in Agricultural	
Education Building . . . . . . . . .	45
Small items such as ventilators, etc.	35
Servicing of refrigerating equipment.	200
<hr/>	
Total	\$ 1,325

Electrical Industries

As in past years this department experienced in 1939 marked success in the placement of its graduates in electrical industries. This is due largely to the emphasis that has been placed on the development of skill by active participation in project work. Such work in this department includes maintenance repair, extensive construction jobs in all shops and buildings of the campus, and operation of the power plant.

All 50 students of the average enrollment have had ample opportunity for this type of practical training. Because all the work accomplished by them was needed and if not handled by the students would have incurred additional state expense, the electrical students enjoy the satisfaction of having contributed something worth-while to other departments and to the school as a whole while gaining experience that could not have been obtained in any other way.

Organization of the work in this field is of special interest. It is as nearly as possible a replica of industry itself. Advanced students who have had previous experience with project work assume the duties of making estimates of materials and labor on all new projects, prepare plans, specifications, and estimate sheets, and make requisitions. Upon the arrival of the materials these students assume leadership on the actual jobs by acting as foremen. Under their direction, newer students perform the work, receiving their initiation into the trade processes. All labor time is kept on time cards with the use of a time clock, and foremen are required to check up on the production efficiency of the workers. Thus all are afforded an opportunity to check their progress by the same profit and loss standards as in industry.

Worthy of comment is the remarkable spirit of cooperation that has been characteristic of this arrangement. Upper and lower classmen working together each contribute to the experience of the other.

It has been the aim of the instructor to supervise this work only to the extent that seems necessary, enabling the foremen to assume as full a measure of responsibility as possible.

Power Plant

Under the supervision of the electrical department the school operates its own electrical generating plant in connection with the central steam heating plant. Second-year students take a class in power plant operation and use the school plant as the laboratory by acting as plant operators during the school year. Each student takes over the responsibility of the plant operation for one day each month. Outside of school hours students are paid to operate the plant during the remainder of the 24-hour day and in vacations. This supplies an opportunity for four students to work their way through school.

KWH generated during the year 1939 . . . . .	400,413
(32 percent increase over last year)	
Cost of operation for the year . . . . .	\$ 6,017
Cost of purchasing this amount of power from an outside utility . . . . .	7,175
Net saving on electrical power by operating the school plant . . . . .	1,158
Saving in wages by using the plant as a laboratory . . . . .	1,500

IX. STATUS OF PROJECT FUND

Ability of California Polytechnic students to conduct group and self-owned projects for educational purposes is dependent upon a unique project revolving fund that now has a net value of approximately \$38,000. This fund was originally established by a straight loan made from the bank and signed by certain faculty members. Profits from project fund operation and interest on project loans have long since repaid the original bank loan and have built up a fund sufficient for financing student projects on a revolving basis.

Boys are able to borrow money from this fund for the purchase of feeder or foundation livestock and poultry, or for the financing of crops and other agricultural or industrial enterprises. When the product is marketed, the fund is repaid with interest. In addition, from the gross profit of the

student one-third is returned to the project fund as insurance against decreasing inventories, losses in student project operation, and other reasons likely to cause a decrease in the fund.

In the years of operation this revolving loan fund has constantly increased in value. In some years this takes extremely careful management, because of high livestock feed prices. However, group buying of feed through the project fund enables students to put market livestock in condition at reasonable costs. The attached sheet shows the status of the project fund on October 31, 1939 (last complete report available).

Project Fund  
Balance Sheet as of October 31, 1939

Assets

Current

Cash: In Bank	\$ 3 936.66	
On Hand	<u>15.00</u>	\$ 3 951.66
Accounts Receivable	11 645.31	
Less Reserve for Doubtful Accts.	<u>200.00</u>	11 445.31
Inventories: Live Stock	18 955.00	
Feed	9 126.70	
Industrial Dept. Supp.	<u>1 249.22</u>	29 330.92
		\$ 44 727.89

Fixed and Deferred Assets

Equipment	358.92
Prepaid Accounts	<u>98.41</u>
Total Assets	\$ <u>45 185.22</u>

Liabilities

Current

Accounts Payable	5 356.38
Accrued Accounts	849.46
State: Livestock Expense	<u>1 007.00</u>
Accumulated Income, October 31, 1939	\$ <u>37 972.38</u>

X. STUDENT LABOR

Approximately 80 percent of the 675 students enrolled at California Polytechnic earn all or part of their expenses. With the objective of spreading equal opportunity to all, administrators of the school deny no youth the chance for technical or vocational college training because of the lack of a few dollars a month.

Not only does the school make every effort to place students in employment both on and off the campus, but it seeks to correlate this outside work with the student's major course of study. Students of electrical industries aid in operation of the power plant. Majors in the field of dairying feed and care for the school's dairy herd, milk the cows, and operate the milk plant. Landscaping students maintain and improve the lawns, trees, and shrubbery.

When this correlation is not feasible, students are given other types of jobs. They do all the janitor and dining hall work except cooking, most of the repair jobs, and a large share of routine clerical work in administrative offices. Probably no other public college in the country has such a large proportion of student labor to adult workers. Only three maintenance men, two farmhands, and a herdsman are employed to care for the 85-acre campus with its 66 buildings and the 1400-acre farm at San Luis Obispo. There is no adult maintenance man at the Voorhis Unit campus.

During the typical month of October, 344 of the students most seriously in need of work were employed on the campus. This figure represents a slight duplication caused by youths receiving pay from two different funds. The average wage for the month was \$17.75.

One important factor is that this student labor summary does not include income from agriculture projects, which will occupy the time of an additional 275 to 350 individuals. The tabulation of student project income is shown in another portion of the report.

Analysis of Student Labor  
October, 1939  
(from Payrolls)

\* \* \*

<u>Classification</u>	<u>No. of Employees</u>	<u>Payroll</u>	<u>Totals</u>
<u>STATE</u>			
Administration - San Luis Obispo			
Offices	2	\$ 43.50	
Fair Exhibit	6	<u>738.60</u>	\$ 782.10
Instruction - San Luis Obispo			
Industry	2	15.90	
Related Subjects	5	72.30	
Library	3	40.20	
Printing and Mimeographing	2	<u>40.50</u>	168.90
Maintenance & Operation - San Luis Obispo			
Buildings	20	301.70	
Grounds	11	219.55	
Automobiles	4	<u>131.40</u>	652.65
Farm - San Luis Obispo			
General	28	341.10	
Meat Animals	6	157.50	
Dairy	4	118.75	
Poultry	3	86.80	
Orchard	2	16.65	
Field Crops	2	25.05	
Agricultural Mechanics	<u>2</u>	<u>43.40</u>	<u>789.25</u>
Total - San Luis Obispo	<u>102</u>		<u>2 392.90</u>
Administration - Voorhis Unit			
Offices	2	<u>32.10</u>	32.10
Instruction - Voorhis Unit			
Agriculture	6	72.15	
Library	2	<u>24.15</u>	96.30
Maintenance & Operation - Voorhis Unit			
Buildings	3	54.00	
Grounds	16	136.35	
Autos	4	<u>55.05</u>	245.40
Farm - Voorhis Unit			
General	<u>15</u>	<u>287.70</u>	<u>287.70</u>
Total - Voorhis Unit	<u>48</u>		<u>661.50</u>
Total - San Luis Obispo & Voorhis State	<u>150</u>		<u>3 054.40</u>

<u>Classification</u>	<u>No. of Employees</u>	<u>Payroll</u>	<u>Totals</u>
<u>PROJECT FUND - San Luis Obispo</u>			
Dairy	25	\$ 524.20	
Meat Animals	7	85.80	
Poultry	<u>12</u>	<u>215.11</u>	<u>\$ 825.11</u>
Total Project Fund	<u>44</u>		<u>\$ 825.11</u>
<u>CAFETERIA-DORMITORY FUND</u>			
San Luis Obispo			
Cafeteria	55	857.52	
Dormitory	18	173.00	
Power House	<u>5</u>	<u>141.76</u>	<u>1 172.28</u>
Total Cafeteria-Dormitory Fund	<u>78</u>		<u>1 172.28</u>
San Luis Obispo	<u> </u>	<u> </u>	<u> </u>
Voorhis Unit			
Cafeteria	12	180.18	
Dormitory	<u>8</u>	<u>102.15</u>	<u>282.33</u>
Total Cafeteria-Dormitory Fund	<u>20</u>		<u>282.33</u>
Voorhis Unit	<u> </u>	<u> </u>	<u> </u>
Total Cafeteria-Dormitory Fund			
San Luis Obispo & Voorhis	<u>98</u>		<u>1 454.61</u>
<u>FEDERAL NYA</u>	<u>52</u>		<u>772.95</u>
Grand Total Students' Payroll	<u>344</u>		<u>\$ 6 107.07</u>

XI. PLACEMENT OF GRADUATES

PRESENT OCCUPATIONS OF 1939 AGRICULTURAL GRADUATES

Agricultural Mechanics Department

Homer Hoskins . . . . . Working for Cornell Tractor Company, Salinas, as maintenance man.

Lawrence Kolding. . . . . Operating own ranch at Westley.

Hitoshi Nitta . . . . . Operating own farm at Santa Ana.

Will B. Wood . . . . . Employed by Clowes Dairy, Stockton, as farm equipment maintenance man.

Dairy Department

Charles Akins . . . . . Employed as assistant herdsman by Elkhorn Farms, Watsonville.

Clinton Campbell . . . . . Employed as dairy worker by Boyd Farms, Yuba City.

Edward Danbom . . . . . Completing degree requirements this year at Utah Agricultural College.

Jack deWitt . . . . . Farming for self at Redlands.

Marion Fosberg . . . . . Farming for self at Turlock.

Dick Gray . . . . . Farming for self at Petaluma.

Dale Heffington . . . . . Employed by Borden Company, New York, as dairy worker.

Emile LaSalle . . . . . Completing degree requirements this year at Utah Agricultural College.

Orson Scott . . . . . Employed by Shields Jersey Farm, East Nicolaus, as a dairy worker.

Lloyd Stennett . . . . . Completing degree requirements this year at Utah Agricultural College.

Elmer Tognetti. . . . . Farming for self in King City.

Landscape Department

Howard Boltz . . . . . Attending the University of California, majoring in landscape design.

William Goold . . . . . Employed by San Francisco Exposition until it closed, and will work there again when it reopens.

Hugh Wallace . . . . . Working as Student Assistant at the California Polytechnic School.

George Yoshioka . . . . . Operating his own flower-growing establishment at Hayward.

Meat Animals Department

Roger Barney. . . . . Employed on cattle ranch, San Diego County.

Richard Boyd. . . . . Swine herdsman at Dr. Hamilton's ranch near Santa Ynez.

Philip Coombs . . . . . Farming at home at present, in Banning.

Tony Cunha. . . . . Completing degree requirements this year at Utah Agricultural College.

Leo Fitzgerald . . . . . Farming at home in Gilroy.

Earl Foor . . . . . Employed by Clay Dalton & Sons, Madera (Purebred Hereford cattle).

Glenn Freeborn. . . . . Attending the University of California.

Harold Laux . . . . . Farming at home in Colusa.

Stanton Lynn. . . . . Cattle buyer for the Manning Packing Co., Los Angeles.

John Martin . . . . . Operating home ranch at Templeton. (Father died)

Edward Maxson . . . . . Swine herdsman at California Polytechnic School.

James Nagle . . . . . Employed by Blackstone Sheep Company, Santa Barbara. (Sheep business located in Madera and Kern Counties)

Alex Park . . . . . Swine herdsman at H. G. Fawcett Farms, Los Banos.

William Rogers. . . . . Operating own swine enterprise at Lancaster.

David Ross . . . . . Operating own swine farm, San Pedro.

J. T. Sturla . . . . . In charge of cattle and farming at the Edward Kock Ranch, Los Alamos.

Harrison Wilson . . . . . Farming in partnership with Father near Templeton.

Donald Wirz . . . . . Operating own swine farm, San Benito County.

Poultry Department

Selven Anderson . . . . . Continuing studies at University of California to obtain degree.

Marvin Hare . . . . . Employed by Black's Turkey Farm, Paso Robles.

Alfred Hinkle . . . . . Following graduation, employed as service man by Butler Feed Company in San Diego. Now beginning business for himself.

Roy Kobayashi . . . . . Operating the home poultry plant of 6000 layers at Santa Ana.

John Snyder . . . . . Managing the Wells Poultry Farm, Santa Barbara.

Lorin Vaughan . . . . . Expanding and developing his own commercial plant at Kingsburg.

Voorhis Unit Graduates

Norman Brown. . . . . Orange County standardization work (temporarily with Lindsay Orange Association, to fulfill civil service requirements to qualify for shipping point inspection examination).

John Gangl. . . . . State Border quarantine patrol.

Marshall Munneke. . . . . On home farm.

Millard Watson. . . . . LaVerne Orange Growers' Association.

(Several previous inspection graduates have recently accepted these permanent positions:)

Charles Agbashian . . . State standardization inspection.

Fred Alley. . . . . Agricultural Inspector, San Diego.

James Brock . . . . . Agricultural Inspector, Riverside County.

Wilbur Kinney . . . . . Agricultural Inspector, Los Angeles County.

Harry Linville. . . . . Foreman, large estate.

Gunnar Sondeno. . . . . Agricultural Inspector, Los Angeles County.

Richard Sparks. . . . . Packing house foreman, San Joaquin Valley.

Carl Tunison. . . . . Plant quarantine inspection.

John Gangl. . . . . Also qualified as Agricultural Inspector for Los Angeles County.

PRESENT OCCUPATIONS OF 1939 INDUSTRIAL GRADUATES

Air Conditioning Industries Graduates

Don Anderson . . . . . Returned for additional work.  
John Benton . . . . . Refrigeration service, Rochester, New York.  
John Bertagnolli. . . . . Refrigeration service business, Corning and Orland.  
Joseph Bradbury . . . . . Welder and pipe fitter for Southern Counties Gas Co.,  
Santa Barbara.  
Bruce Broemser. . . . . Returned for additional work.  
John Gray . . . . . Air Conditioning draftsman, Hateley and Hateley,  
Sacramento.  
Harold Haley. . . . . Fresno State College.  
William Jackson . . . . . Santa Barbara State College.  
Tom McGrath . . . . . Santa Barbara State College.  
Sheldon Moore . . . . . Air Conditioning draftsman, California Fresno Oil Co.,  
Fresno.  
LeRoy Naman . . . . . Santa Barbara State College.  
Jack O'Brien. . . . . Mechanic, Consolidated Aircraft Corporation, Inglewood.  
Richard Owen. . . . . Air Conditioning Sales, Spitler and Short, Hanford.  
Ray Peckham . . . . . Stock room man for air conditioning equipment.  
Wm. P. Phelps . . . . . Draftsman, H. and H. Hardware Co., Salinas.  
Eddie Trafton . . . . . Returned for additional work.  
David Tremayne. . . . . Refrigeration work, Templar Refrigeration Co.,  
Sacramento.  
Orrin Wickersham. . . . . Refrigeration service, Burbank.  
Edward Wiley. . . . . Refrigeration work, Sears Roebuck Co., Santa Barbara.

Electrical Industries Graduates

Garland Barneby . . . . . Sub-station operator, Southern California Edison Co.,  
near Los Angeles.  
Lawrence Barre. . . . . Power Plant operator, Pacific Gas and Electric Co.,  
Auberry.  
Amos Cook . . . . . Electrician, Shell Oil Co., Oilfields.

Clyde Doser . . . . . Electrician and draftsman, Westinghouse Electric and Mfg. Co., Los Angeles.

Ronald Dumont . . . . . Power Plant operator, Pacific Gas and Electric Co., Auberry.

Warren Foster . . . . . Repair Department, Bureau of Light and Power, Los Angeles.

James Irwin . . . . . Electrician, Bureau of Light and Power, Los Angeles.

Robert Marshall . . . . . Unemployed on account of health.

Gerald Moon . . . . . Power Plant operator, Nevada California Power Co., Bishop.

Homer Tomasini. . . . . Electrician, Western Electric Co., San Francisco.

Aeronautics Industries Graduates

Louis Barr. . . . . Mechanic, Lockheed Aircraft Corp., Glendale.

Edward Beers. . . . . Mechanic, Lockheed Aircraft Corp., Glendale.

Hollis Clark. . . . . Mechanic, North American Aircraft Corp., Inglewood.

Jack Clark. . . . . Mechanic, Allen Hancock College of Aeronautics, Santa Maria.

Lester Collins. . . . . Mechanic, Lockheed Aircraft Corp., Glendale.

Chester Coonrod . . . . Mechanic, Lockheed Aircraft Corp., Glendale.

Jack Eagan. . . . . Returned for additional work.

Dudley Grimes . . . . . Mechanic, Allen Hancock College of Aeronautics, Santa Maria.

Richard Hall. . . . . Mechanic, Allen Hancock College of Aeronautics, Santa Maria.

Schuyler Hawes. . . . . Mechanic, Lockheed Aircraft Corp., Glendale.

Charles Hofflund. . . . Mechanic, Lockheed Aircraft Corp., Glendale.

William Hollister . . . . Mechanic, Allen Hancock College of Aeronautics, Santa Maria.

David Hoover. . . . . Airport operator, San Luis Obispo.

Harold Hunting. . . . . Mechanic, Allen Hancock College of Aeronautics, Santa Maria.

Wilmot Justice. . . . . Mechanic, North American Aircraft Corporation, Inglewood.

Walter Lucas. . . . . Draftsman, Engineering Department, Lockheed Aircraft Corp., Glendale.

Angus MacKillop . . . . . Draftsman, Engineering Department, Lockheed Aircraft Corp., Glendale.

Robert Magness. . . . . Draftsman, Consolidated Aircraft Corp., San Diego.

Jos. W. Powers. . . . . Draftsman, Douglas Aircraft Corp., Inglewood.

Glen Sackett. . . . . Mechanic, Lockheed Aircraft Corp., Glendale.

Robert Settle . . . . . Mechanic, Consolidated Aircraft Corp., Inglewood.

Simon Simonian. . . . . Mechanic, Allen Hancock College of Aeronautics, Santa Maria.

Antone Stam . . . . . Returned for additional work.

Edwin Stickle . . . . . Mechanic, North American Aircraft Corp., Inglewood.

Eugene Thompson . . . . . Mechanic, North American Aircraft Corp., Inglewood.

**XII. SERVICE TO AGRICULTURE**

California Polytechnic School was expanded in 1933 as a statewide service college to vocational agriculture and indirectly to all agriculture. Some of the service functions have been discussed in detail elsewhere, and will be only mentioned in this section of the report to have a complete reference.

1. The most important service function is the preparation of teaching aids for the 10,500 vocational agriculture students in 187 high schools and junior colleges offering vocational agricultural instruction. These teaching aids include a monthly release covering summaries of current articles and books, price charts and other economic studies, and blue prints showing construction of farm buildings and devices. Advice is also given in making film strips and local preparation of teaching aids.

2. Advice in project operations is also provided directly to the vocational agriculture boys over the state through the California Future Farmer, a monthly magazine published at the Polytechnic School by the State Bureau of Agricultural Education. Each month, articles are prepared by experts in agricultural enterprises, written especially for boys.

About 11,000 copies of the magazine go directly to the home of the boys, and to some adults. Those going to the homes of nearly 10,000 members of the Future Farmer organization, are read by the parents as well as the boys. A regular NBC radio program is also presented as a service feature.

3. Faculty members and bureau specialists take active part in many agricultural organizations and boards. These include various breed associations, swine breeders' groups, poultry improvement work, California Seed council, State Chamber of Commerce, California Dairy council, State Veterinarians' organization, agricultural inspection groups, etc.

4. The California Polytechnic School is the locale of an annually increasing number of agricultural planning and conservation meetings. Farmers in the district are holding meetings there and asking for demonstrations. The annual "Poly Royal" open house, is an education and inspiration to some 4000 to 5000 from all parts of California. Faculty members take part in adult evening school programs in the area.

5. Agricultural experts in greater number each year, are visiting the state college frequently to secure latest information on actual agricultural production. No other state institution is conducting feeding projects of commercial nature in market livestock, or operating a commercial dairy herd or poultry flock. Many beef cattle breeders, feeders and herdsmen make an annual visit to the feeding pens of the students at California Polytechnic.

6. The foundation flocks and herds at Polytechnic, and the student projects, are furnishing a considerable number of calves, lambs, shoats, and baby chicks or hatching eggs, primarily to projects of high school vocational agriculture students over the state. All such products are carefully bred for the highest efficiency of production, and this service does a valuable task in disseminating such high - quality foundation breeding stock.

7. Faculty members and bureau specialists give expert help in such means as serving as judges at district fairs, and preparing many technical articles published in the agricultural magazines of the state. They also serve to make contacts between established breeders and other outstanding farmers, and the high school vocational program in the 185 different districts, as they visit the agriculture departments.

8. The college encourages agricultural efficiency by the high production goals set by its own agricultural enterprises. The high butterfat average of 444.1 pounds per cow in the herd composed to some extent of student project animals and cared for entirely by students; the quality of commercially-fed carlots of cattle, or pens of lambs, which have won grand championships at major shows, are inspiring to agriculture because the operation is entirely practical and results are conclusive. These are not scientific experiments, but actual demonstrations by students of efficient farming; rations, gains and profits are entirely comparable with what may be expected by a farmer.

9. Training of vocational agriculture teachers has been discussed elsewhere in greater detail. It is repeated here only to include it in the "service" classification. The college provides the annual meeting place for the conference and summer session of vocational agriculture teachers; and the convention and statewide judging contests of the Future Farmers of America.

10. Faculty and students at Voorhis Unit of California Polytechnic are making scale surveys in the citrus groves over Los Angeles County, weed surveys and control plots in various areas, and rodent surveys over areas within the County.

In the discussion of the service features of California Polytechnic School faculty, it is significant that every faculty member has a full-time teaching load and an additional burden of supervision of agricultural projects and farm operations at the institution, which are a prior responsibility to the state service functions. No faculty member has been given an allocation of time, or teaching assistance, to permit him to engage in these extra activities.

The result is that the faculty members at the California Polytechnic School put in many hours more time each week, than in the conventional collegiate institution; and work right through the summer months as well. While faculty members of many institutions are attending scientific meetings, traveling in far countries or attending summer schools to get higher degrees and higher salaries, the men at California Polytechnic are doing the prosaic, non-publicized but important and unselfish job of trying to improve agriculture in California.

### XIII. PROPOSED BUILDING PROGRAM

Two of the four original classroom and administration buildings constructed between 1901 and 1915 are still in use, even though they are decidedly obsolete and inadequate. The other two are used only for grain and equipment storage. An adequate administration and classroom unit is needed to replace these four antiquated buildings.

Another vital need is a sewage disposal and irrigation system. A steady increase in the student population without any expansion in the sewage system has created an acute problem. The need exists for a new system in conjunction with a reservoir to store the limited water available for irrigation. It is becoming increasingly necessary that the school cultivate every possible foot of soil to provide project facilities for agricultural students.

The present milking barn and milk house need to be altered and supplemented in order to meet the state legal requirements. Also, the increased number of dairy projects and students makes the present quarters cramped.

The poultry department needs an egg-grading and storage room to replace the present small space allotted for this purpose in the basement of the warehouse where slaughter and incubation are carried on.

Since the former slaughter house has been condemned and torn down, a building is required where project animals can be dressed for the school cafeteria and where students can be taught anatomy as well as meat-cutting.

The meat animals department has increased to a point where it will be necessary to build additional facilities in the way of sheds and corrals at the beef unit if the project method of instruction is to continue for all students interested.

A sawdust house for the dairy is needed to provide storage space for this cheap form of bedding material used by the department.

The above list of projects should be under construction before July 1, 1940.

Other major needs include an aeronautics building, farm mechanics building, an isolation ward for animals arriving on the campus, and a larger dining hall. This group of projects is not to provide expansion, but to care for the overcrowded condition in the existing department involved.

#### XIV. CURRICULA RELATIONSHIPS WITH OTHER INSTITUTIONS

The annual report on this problem is alternately tinged with optimism and discouragement.

There seems little probability that this problem will be solved in any manner satisfactory either to California Polytechnic School or to other institutions of college level, until the state technical college is placed on an educational parity with other collegiate institutions.

In the history of California Polytechnic School, it was stated that young men have been transferred to A. & M. colleges in other states at the end of their third year at California Polytechnic, and have been graduated with honors at the end of the following year.

This is the most important statement that can be made concerning the curricula relationships with other institutions. Thus far, a healthy relationship has been established with a number of degree-granting A. & M. colleges in other states, principally Oregon State, Washington State, Utah Agricultural College and Iowa State College. These institutions are recognizing the Polytechnic work as being the full equivalent of work covering a similar amount

of time in their own departments, even though in some cases it is necessary to evaluate some work given at San Luis Obispo and not given at the land-grant college.

The situation within California is not so encouraging. There is little correlation between the curricula at California Polytechnic, and that at other colleges within the state, making the basic pattern fundamentally different. In general, it may be said that industrial majors at California Polytechnic are finding it possible to transfer at the end of two years to the industrial arts departments of the state regional colleges, and to be graduated with little if any loss of time. The same may be said of agriculture graduates who transfer to the University of California, but in order to be accepted at the University with advanced standing, it is necessary that the student sacrifice his "doing" courses at San Luis Obispo, and spend his entire time on his chemistry, college English, botany, zoology, etc. Thus he has not been able to take advantage of the very opportunities for which Polytechnic School was established.

Granting the Bachelor of Science degree at California Polytechnic will clarify relationships to a great degree, for it will for the first time give the institution a clear, collegiate status. Few other institutions are able to classify a "three-year technical college", in terms of their own levels of instruction. A four-year institution leading to a B.S. degree, is understood.

#### XV. TEACHER TRAINING

Since 1931, California Polytechnic School has been a functional unit in the training of prospective vocational agriculture teachers, and of teachers in service.

For the portion of the year ending in June of 1939, 22 "cadet teachers" or trainees, spent half of their 10-months period at the California Polytechnic School. All but one was placed in a high school teaching position at the end

of the training year. This individual was later offered employment, but had gone into farming and declined the offer.

For the group of trainees who began the cadet period August 1, 1939, a slightly new plan was established. The entire group of 23 agricultural college graduates came to San Luis Obispo August 1 and went through an intensive six-weeks' training period, with special classes taught by California Polytechnic faculty members and Bureau of Agricultural Education staff members. On September 15, three prospects were dropped as "least likely to succeed", and the remaining 20 were divided into two groups of 10 each.

One group remains at Polytechnic during the four months after September 15, while the other group goes to "critic centers" or practice teaching centers in regular California high schools. One group of four schools surrounds Stockton, and the other group is near San Luis Obispo. The 10 men remaining at San Luis Obispo get a daily course in teaching methods, and special classes in agricultural mechanics, veterinary work, economics, fruit production, crops production, poultry and dairy husbandry, meat animals husbandry and landscaping.

In addition, they have been giving a night school in poultry production at Templeton nearby, for adult farmers of the district; and have been observing the night school and continuation work in the critic schools near San Luis Obispo. Many have done substitute teaching at Polytechnic. On about January 25, the group in the practice schools will replace those at Polytechnic, the latter going into the practice teaching field. The spring program parallels the fall schedule.

The institution also offers considerable help to teachers in service. Each year since 1931, from one to three weeks of intensive instruction and conference sessions, have been offered to the high school vocational agriculture teachers. At least 95 per cent of the men in the field (271 this year) attend one or more weeks of this instruction. Specific skills are demonstrated by Polytechnic faculty members, and lectures and field trips offered.

The conference week is largely run by the agriculture teachers. In addition the college offers its dormitories and other facilities to make a pleasant educational period for the visiting teachers.

#### XVI. NATIONAL YOUTH ADMINISTRATION PROGRAM

The past year the California Polytechnic School and the National Youth Administration have been cooperating in offering a program to youths who are not financially able to carry on without some assistance from other sources. There are two programs which are being carried on at the present time.

1. College Aid Program. This program has been very successful, due to the fact that students have been assigned to jobs in conjunction with their major field. This has permitted students to develop skills in their own fields without the necessity of creating artificial jobs. Skills thus developed will be helpful to the student in securing private employment.

2. Out of School Program. This has been another successful program which can be attested by the following statement of Mr. John K. Dunbar, District Manager of the NYA of the San Luis Obispo district.

"During the past year it has been my privilege to be in charge of the NYA program at your school, and I would like to take this opportunity to thank you for the splendid cooperation of the school as a whole, and of the several members of the staff in particular who have been directly in charge of our various projects.

"For the past six months we have had an average of 60 to 70 boys assigned to you on the out-of-school program, and we are very much pleased with the work accomplished and with the opportunity for self-betterment afforded the youths.

"The various construction projects such as the building of poultry units and brooder houses, and the cement work in the construction of retaining walls together with the landscaping, plumbing, and electrical projects have given the youth workers invaluable experience, and has greatly enhanced their chances for private employment in their chosen fields of endeavor, while at the same time completing many worthwhile projects of a permanent nature for the use of California Polytechnic School.

"The school may well be proud of the accomplishments made possible by its whole-hearted co-operation with the National Youth Administration, and it is to be hoped that we will be able to continue the good work that has been started."

Signed JOHN K. DUNBAR

## XVII. FUTURE NEEDS

The material needs and plans of the institution have been touched under other headings, including the building program. This closing portion of the annual report will be principally confined to the educational needs as they appear to parents, students, employers, educators and the public generally.

The primary need is to place the California Polytechnic School in an understandable classification with other institutions of college level, by authorizing it to grant the same kind of a degree which other colleges award -- a bachelor of science degree.

Let us see the importance of this move to various individuals whose collective opinion must in the final analysis supercede the opinion or prejudices of any smaller administrative group.

The move is being emphatically demanded by parents. This terminology not only includes the parents of the present group of several hundred young men now enrolled, but the parents of a great number of boys who are annually forced away from the institution of their choice because it does not grant a degree.

Putting the matter in another way, both boys and parents want the kind of educational pattern followed by California Polytechnic, with the kind of degree given by institutions which do not closely follow this pattern. The result is that many boys are virtually forced to go to other institutions, and to take a course which they do not particularly care to take, and which does not meet their natural inclination or ability, because the bachelor of science or bachelor of arts degree has come to be the only recognized stamp of collegiate education.

Parents put the matter this way: "If we are to send our son away to school after he has completed high school, and go to this expense, we want him to have a degree to show for it. We want him to learn a practical phase of agriculture or industry, but we are more concerned with the fact that when he completes his

matriculation, he must have a diploma equal to that of any other college. If he cannot get this at California Polytechnic, we will send him to \_\_\_\_\_ college or university."

The move is equally demanded by students, but usually with less emphasis on the "honor" which may be attached to the letters. The boys are more concerned with the practical phase of employability. They are awake to, and puzzled by, the present situation wherein their training is definitely geared to technological employment which they cannot get because a pre-requisite of much of this employment is a bachelor of science degree. This condition does not engender a loyalty to the educational opportunities furnished by the state of California for them.

The plan is very actively backed by prospective employers, who say without qualification, "Your employees are trained in the very skills and sciences most valuable to us, but we cannot change our standards. To make an exception to our pre-requisite of a bachelor of science degree, or attendance at a degree-granting institution, to permit California Polytechnic School graduates to be employed, would require an exception which would admit others not trained in operative techniques. If your graduates can come to us with the bachelor degree, we will be more than glad to hire them."

The plan has been backed by educators for a decade. When discussions were in progress concerning the possibility of transfer to the state regional colleges, presidents of these institutions at a statewide meeting asked, "Why not give your own degree".

In a recent report made by Dr. Coffin, with which members of the Board of Education are familiar, he states in brief:

"The grounds for the request for permission to grant the Bachelor's degree are, in my judgment, fully justified....Without disturbing the several one-, two-, and three-year curricula in agriculture and in industrial engineering, these courses could be so reorganized that when augmented by a

fourth year they would fully meet the standards for the Bachelor of Science degree in first-rate institutions. .... (The plan) would constitute what seems to me to be one of the most outstanding examples of real functional education at the college level to be found in the whole nation. It would retain all the virtues of job-getting concreteness and combine with these the liberalizing advantages of social studies integrated about the social issues which cluster about the job.... With these observations, suggestions and interpretations in mind, I would fully and heartily recommend that the State Board of Education pass the resolution favoring the granting of the Bachelor of Science Degree."

The above minute excerpts from a document of 2000 words states what an educator concludes after making a first-hand study of the type of work offered, talking with students, investigating facilities and interviewing faculty members.

Last, is the attitude of the public. California Polytechnic School is a statewide institution, drawing enrollment from virtually every corner of the state, and at one time or another, from almost every community. But its changes from high school to technical college were made without particular publicity, and the public as an entity has paid little attention to its particular educational level or educational award. Few individuals who do not have personal contact with the institution, know whether it gives a degree or not. Probably a great many of them think that since it is a college, it naturally gives a degree. Consumation of this plan, then, would not be of particular moment to the public as a whole, which will accept it as a natural development in the recognized necessity for advancing educational levels with employment demands.

In closing, may I say that the California Polytechnic School welcomes visitors, and will feel privileged to act as host at any time to members of the State Board of Education and others.

Sincerely yours,

*Julian A. McShee*  
President, California  
Polytechnic School