ANNUAL REPORT TO THE STATE BOARD OF EDUCATION

ON THE

PROGRESS OF THE CALIFORNIA POLYTECHNIC SCHOOL

SAN LUIS OBISPO, CALIFORNIA

JANUARY, 1942

INDEX

F O R E W A R D

This eighth annual report of the California Polytechnic school to the State Board of Education continues a policy established in 1933 when the institution was made a direct administrative branch of the State Department of Education. The current report, although more condensed than in some previous years when formative steps required explanation to the board, is a complete and comprehensive summary of the school's activities and accomplishments during the past year.

A world crisis such as the present one brings into question all of our institutions. It calls for a re-examination of existing farm, industrial and educational programs. Despite the present world-wide condition of uncertainity, the California Polytechnic school is in a unique and enviable position as an educational insitution. When many other higher educational institutions are frantically trying to adjust their curricula to continue their place in a world which has at least temporarily outgrown the purely academic program, the California Polytechnic school is fortunately providing the very type of training so valuable to the total war effort - and is doing it on a large scale without having to alter in any way the educational philosophy which has been the unswerving aim of this institution for the thirty-nine years of its service to California.

Because this institution was already equipped with the facilities and the educational pattern capable of turning out skilled agricultural and industrial

producers it was one of the first in the nation to be granted a resident project in connection with the national defense training program. In addition to this specialized defense training which some 1300 students received at this institution in the last year, the California Polytechnic school is constantly turning out men trained in the technical aspects of agriculture and industry - two fields indisputably essential to our national safety. Many of these graduates have already become key men in our war industries and in our vast "Food for Victory" program.

In the following report, considerable explanation has been given to various aspects of the defense training program operating in the school, and for that reason certain other activities, which have been given considerable attention in previous reports have been described in more brief form. This does not mean that there has been any slackening in the regular educational program, but rather that a great deal of additional effort is being made to make the defense training program successful.

ANNUAL REPORT TO THE STATE BOARD OF EDUCATION
ON THE
PROGRESS OF THE CALIFORNIA POLYTECHNIC
SCHOOL

REGULAR COLLEGE LEVEL PROGRAM

The various curricula of the California Polytechnic school are set up within the two main divisions of agriculture and industry. The educational program of the school is dedicated to train people in practical sciences and techniques. This educational objective is similar to that of the typical "agricultural and mechanics college" of other states, with one major variation. That variation concerns the research program. No such field is contemplated in this institution's development. Neither is there any plan to extend the work in pure sciences, with the aim of graduating research specialists. California Polytechnic will limit itself to training agricultural and industrial artisans, well grounded in social and natural sciences.

Students entering the regular college courses may enroll in the two-year curriculum leading to a vocational certificate, the three-year curriculum leading to a technical certificate, or the four-year curriculum leading to the Bachelor of Science degree. All of these curricula prepare young men to enter technical occupations which are essential to the present war program and will continue to be essential in the peace to follow.

NATIONAL DEFENSE TRAINING PROGRAM

At the outset of this present emergency, which has finally resulted in world-wide conflict, when this nation found itself unprepared to speed up necessary

industrial production because of insufficient numbers of skilled workmen available, there was only one solution for the bottleneck. That was to ask for the assistance of educational institutions already equipped to give the type of training necessary to turn out skilled workmen. That is essentially why this school was one of the first in the nation chosen to help prepare workers for employment in national defense industries. The program is divided into three phases - the National Youth Administration resident program, the adult National Defense training program, and the pilot training of the Civil Aeronautics Administration.

ENROLLMENT AND PLACEMENT

During the period January 1, 1941 to December 31, 1941, 1265 defense students received training at the California Polytechnic school.

California Polytechnic is considered by national educational officials to be one of the leading institutions of its kind in the United States in training specific defense employees. Effectiveness of such training is shown in the following list of firms employing graduates of the regular and special courses during the last two years, and in which the employee is directly using the technical and vocational skills received at California Polytechnic:

INDUSTRIES VITAL TO DEFENSE

Lockheed Aircraft Corporation
Douglas Aircraft Corporation
Vultee Aircraft Corporation
Consolidated Aircraft Co.
Northrup Aircraft Corporation
North American Aircraft Co.
Mare Island Navy Yard
Pan-American Airways
California Shipbuilding Corp.
Todd Shipbuilding Co.
Columbia Steel Co.
Pacific Gas and Electric Co.
Western Electric Co.
Sacramento Air Depot
Hancock Flying School, Santa Maria
North Island Air Depot, San Diego
Pearl Harbor Naval Base
Moore Shipyards, Oakland
American Dredging Co.
L. E. Dixon Construction Co.
Commerical Iron Works, Los Angeles
U. S. Maritime Service, Hueneme
Southern Pacific Railroad

ALLIED INDUSTRIES

Avenal Welding Works (petroleum)
Oliver Johnson Co., San Jose
A. B. Dick Mfg. Co., Chicago
Royce Construction Co., Chicago
Youdel Equipment Co., Chicago
Ford Motor Co., Richmond
Cochise Rock Drill Co., Maywood
De Long Bros., Los Angeles
LeTourneau Mfg. Co., Stockton
Angelus Can Co., Vernon
Fisher Body Works, Pontiac, Mich.
L.&.F. Machine Works, Huntington Park
Byron Jackson Co., Los Angeles

RESIDENT NYA PROGRAM

History:

In October of 1940 the first of the resident center buildings, constructed by the National Youth Administration on a campus plot leased from the school, was completed and almost immediately 116 boys selected from thousands of applicants in the state enrolled in special defense training courses. In April of 1941, a new unit doubling the housing facilities of the resident center was completed, bringing the capacity enrollment to 240 students. The resident unit now comprises two dormitories of four sections each, a large dining hall, a recreation hall and an infirmary ward. Adjoining each dormitory section (which has double bunks and individual cabinets for twenty-six persons) are the locker room, showers, wash rooms, and laundry facilities.

Shop Facilities:

To supplement the school's previously existing shop facilities, the National Youth Administration financed the purchase of a completely prefabricated machine shop of glass and steel. The prefabricated building with the machinery necessary to equip the shop was shipped by rail from Ohio and set up on land leased from the school at the close of the last school year. The building which is 140 by 40 feet has a 40 by 40 foot wing at one side which is now housing the radio production shop. Under construction now, and due to be completed very soon, is a 50 x 150 foot wood frame-stucco building also financed by Federal funds on leased land adjacent to the prefabricated shop. This shop will be equipped as the aircraft sheet metal shop, enabling the machine shop to take

over the bulk of the prefabricated shop which is now being used for both.

Training Program:

This program is designed to give youths between the ages of 17 and 25 training and work experience in machine shop, aircraft sheet metal and sub-assembly, commerical sheet metal, welding and radio. The period of training was originally six months but the need for stepping up the tempo of the program brought about an intensification - now the shops operate 24 hours per day and students are placed at the end of three months. Each assignee spends four hours a day in a class-shop and also a four-hour shift on project work, most of which is in a production shop of the trade the youth intends to enter. The instruction is given by teachers hired and supervised by the school. The work-project activity is administered by the NYA. Production work includes fabrication on a production-line basis of items to be used by other government agencies.

ADULT NATIONAL DEFENSE TRAINING

This program, started in August of last year, provides training in machine shop, welding and aircraft sheet metal for men out of school, WPA workers and men recommended by the California State Department of Employment. The Federal government pays the necessary operating expenses and the school supplies the instruction, facilities and equipment. The classes operate at night on a six-hour basis, using the same facilities as are used on other shifts by the NYA students. During the past year, January 1, 1941 to December 31, 1941, 199 men have been placed in defense industries after completing the prescribed course.

CIVIL AERONAUTICS ADMINISTRATION

The California Polytechnic School entered into the Civil Pilot Training Program in the fall of 1939. Since that time 118 students have graduated from

this program at this school. These students each received 35 hours of flight training and 72 hours of ground school work.

The flight training is given by licensed instructors at the San Luis Obispo county airport in conjunction with the ground school work given by the aeronautics department of this school. Cost of this training is paid by the Federal government.

Number of graduates:	Primary	Secondary
Fall Session, 1939-40	20	
Summer Session, 1940	41	
Fall Session, 1940-41	17	9
Spring Session, 1941	22	
Summer Session, 1941	9	
TOTAL NUMBER OF GRADUATES		118
Enrolled at the present time		9

Information regarding graduates:

Entered Army Air Corps	32
Entered Naval Air Corps	14
Entered Royal Air Force	1
Entered Canadian Royal Air Force	1
Applications Pending for Army Air Corps	8
Applications Pending for Naval Air Corps	2
Applications Pending for Canadian Royal Air Force	1
Civilian Pilot Training Program Instructor	1
Operating Airlines	3
Airplane Mechanics	14
Other branches of the Service	4
Other Lines of Work	14
Still in School	18
Unknown	5

COMPARATIVE SUMMARY OF REGISTRATION

Regular Enrollment

County	January 1, 1941	December 31, 1941	Loss or Gain
Alameda	25	17	-
Amador	1	2	+
Butte	9	2	-
Calaveras	1	0	-
Colusa	5	2	-
Contra Costa	17	9	-
Fresno	23	27	+
Glenn	7	2	-
Humboldt	13	9	-
Imperial	12	11	-
Inyo	2	3	+
Kern	18	19	+
Kings	13	15	+
Lake	0	1	+
Lassen	1	0	-
Los Angeles	197	165	-
Madera	5	5	=
Marin	1	0	-
Mariposa	1	1	=
Mendocino	8	8	=
Merced	16	12	-
Modoc	4	1	-
Monterey	8	15	+
Napa	1	4	+
Orange	39	35	-
Placer	5	8	+
Riverside	24	21	-
Sacramento	7	2	-
San Benito	3	3	=
San Bernardino	34	27	-
San Diego	20	25	+
San Francisco	17	13	-
San Joaquin	16	16	=
San Luis Obispo	81	71	-
San Mateo	7	5	-
Santa Barbara	37	29	-
Santa Clara	18	9	-
Santa Cruz	9	6	-
Shasta	0	2	+
Sierra	0	1	+
Siskiyou	7	3	-
Solano	5	5	=
Sonoma	9	11	+
Stanislaus	19	11	-
Sutter	4	4	=
Tehama	7	1	-
Trinity	1	1	=

County	January 1, 1941	December 31, 1941	Loss or Gain
Tuolumne	3	2	-
Tulare	21	13	-
Ventura	9	18	+
Yolo	3	3	=
Yuba	5	1	-
Other States and Countries	67	42	-
Total Full-Time Men Students	866	715	
Part-Time Students			
NYA Defense Students	120	1015	
Adult Defense Students	80	250	
Cadet-Teachers	20	25	
TOTAL FULL-TIME AND PART TIME MEN STUDENTS.	1086	2005	

TOTAL ENROLLMENT INCREASE

A study of the preceding enrollment chart shows an increase in Grand Total Full-Time and Part-Time Students of 919 students over last year. The total enrollment for this year is 2005 students as compared to 1086 for last year. However, this increase is due entirely to part-time enrollment which increased from 220 last year to 1280 this year. Of this last figure, 1265 are defense students and 25 are cadet-teachers trained at California Polytechnic.

FULL-TIME ENROLLMENT DECREASE

The full-time student enrollment shows a decrease of 151, or 17½ per cent, which is surprisingly low considering all the factors contributing to general decreased enrollment in all institutions of higher learning. Since the school is not co-educational, the number of men called into the armed services or defense industries is naturally a larger percentage of the total enrollment than it would be otherwise.

Much of the decrease in aeronautical, electrial and air conditioning departments was due to the present availability of high salaried jobs for even semi-technically trained men in those industries. The present shortage of skilled farm workers in certain areas has caused farm families to call home their boys

to fill in gaps made by the drafting or enlistment of older brothers.

The special skills which many Polytechnic students have acquired have made many of them eligible for commissions in the army, navy, and air corps and has caused considerable numbers to enlist rather than wait to be called.

Reasons given by those who dropped out of school are as follows:

Defense Industries (Including other private non-agricultural employment). .	36%
Military Service (All branches)	28%
Return to Farm (Family farm, own farm or farm employment)	22%
Transfer to other institutions	10%
Other Reasons	4%
	100%

SUMMARY OF DISTRIBUTION

In checking the enrollment table for full-time students it will be noted that students are attending California Polytechnic from 50 of California's 58 counties, making the institution truly statewide in scope. Indicative of the spread of enrollment is the fact that two counties not previously listed - Sierra and Shasta are represented by one and two boys, respectively.

No particular significance can be attached to the losses or gains by counties over the last year. Fewer students are in attendance this year from 30 counties, more from 14 counties and the same from 10 counties.

The largest decrease was from Los Angeles County, which lost 32 students. In that county so much defense activity makes good paying jobs easy to find. The out-of-state and foreign countries' enrollment dropped off 25 students, due undoubtedly to war conditions.

The distribution of the total full-time enrollment figure as far as the divisions of agriculture and industry are concerned is as follows:

Agriculture 496

Industry 219

715

P L A C E M E N T

AVAILABILITY OF JOBS

Every recommended student completing a curricula is almost sure to be placed immediately at good wages. Special students and those regular students, who because of financial difficulties, leave school before graduation, find almost immediate employment. The only problem is to assist the students to obtain the type of work for which they are trained rather than permit them to take the first jobs that are offered them.

With all branches of the military service seeking graduates of recognized collegiate institutions for officer material, many of the graduates have enlisted for the duration without waiting for selective service call and without reference to their particular technical major. Other graduates have entered the armed forces with special ratings in which their specialized skills in such lines as agricultural mechanics, aeronautics, electrical industries, animal husbandry, etc. is enabling them to serve more efficiently and advance more rapidly.

Still other students, realizing the need for trained men in essential industrial and agricultural fields, have taken positions offered to them through the medium of the college's placement service.

PLACEMENT METHOD

The placement function is a primary responsibility of the deans of the agricultural and industrial divisions, the former being assisted also by one of the members of the Bureau of Agricultural Education staff, who acts as co-ordinator for agricultural work. These individuals, in contacting prospective employers, also perform another valuable function. They bring back to the

instructional staff, the latest employer requirements in skills and courses necessary in the continually changing industrial or agricultural world. By this means, the placement heads know that the students who go out will most nearly meet the actual employment needs, and not merely conform to a theoretical goal of graduation requirements.

PLACEMENT RECORD

The placement record for the graduating class of May 1941, follows:

Industrial:

Air Conditioning

Mervyn Chamberlain . . .	Drafting and Sales, Spitler and Short, Fresno.
G. W. Gebhardt	Returned to school for additional training.
Jack C. Held	Army.
Bert Rinaldi	Golden State Company, Fresno.

Aeronautics

Larry Bridges	Returned to school for additional training.
Edgar Eimon.	Hancock School of Aeronautics, Santa Maria.
Theron Ferguson	Naval Air Corps.
Jack Johansen.	Airplane mechanic, Pan American Airways, San Francisco.
William Johns.	Airplane mechanic, Pan American Airways, San Francisco.
Fred McAdams	Hancock School of Aeronautics, Santa Maria.
August Milich	Hancock School of Aeronautics, Santa Maria.
Roy Moungovan	Airplane mechanic, Pan American Airways, San Francisco.
William Nolan	Army Air Corps.
Herbert Stoddard. . . .	Jensen Flying Service, Sacramento
Richard Watkin	Hancock School of Aeronautics, Santa Maria.
Harold Winn.	Hancock School of Aeronautics, Santa Maria.

Electrical

Donald Carranza . . . . Sterns' Wired Music Company, San Luis Obispo.

Vernon Claeys . . . . . Pacific Gas and Electric Company, Martinez.

Russell Friend. . . . . Sterns' Wired Music Company, San Luis Obispo.

Paul Goya . . . . . Returned to school for additional training.

Theodore Hollinger . . . Returned to school for additional training.

John Seaton . . . . . Returned to school for additional training.

Emil Sirl . . . . . Steam Plant, Pacific Gas and Electric Company, Oakland.

Gordon Southard . . . . Steam Plant, Pacific Gas and Electric Company, Oakland.

Ralph Southard . . . . Telephone Company, Sacramento.

Newell Terrill . . . . Pacific Gas and Electric Company, Paso Robles

Charles Thorne . . . . Southern Pacific Company

Agricultural:

Meat Animal Production

Leon Austin . . . . . Refrigeration Company, Los Angeles.

John Blake . . . . . Army

Dan Childs . . . . . Ranching, Simi.

Richard Dowdakin. . . . Farming, Weaverville.

Charles Fick. . . . . Army.

William Gallagher . . . Returned to school for additional training.

Tony Gomez . . . . . Army.

Howard Hubbard . . . . Traction Farms, Tranquility.

Willie Koolmees . . . . Farming, Norwalk.

John D. Lopez . . . . Farming, Shafter.

John Taylor. . . . . Army.

David Tompkins . . . . Ranching, Casmalia.

Bob Walker	Farming, Hemet.
Carl Miller	National Defense Employment.
Bruce Ponton	Army.
Gilmore Ross	Army.
Charles Crane.	Returned to school for additional training.
Donald Simpson	Farming, Orland.

Dairy Industries

Robert Bell	Army Air Corps.
Charles Trigg	Cow Tester, San Luis Obispo County.
Stanley Weir.	Goodyear Rubber Co. Farm, Arizona.
Rod E. Tiernan, Jr.	Unknown.

Poultry Production

William Kobayashi	Army.
Giichi Omori	Army.

Agricultural Mechanics

William Bradley	Machine Operator, Vultee Aircraft Corp.
Wayne Lowe	Army Air Corps.

Crops Production

Oscar Huffman	Inspector, Agriculture Commissioner's Office, Merced County.
Don Hughett.	Father's ranch, Bakersfield.
Henry Warren	Field Inspector, Agricultural Conservation Association, San Luis Obispo County.

Ornamental Horticulture

Howard Johnson	Own nursery, La Mesa.
James Melvin	Army Air Corps.
Tahae Sugita	Army Medical Corps.
Kei Mikuriya	Runs florist shop.
John Garrity	Nursery Work.

Mickey O'Donnell . . .	Howard and Smith Nursery.
Jiro Kai	Returned to school for additional training.
Ferris Floyd	Howard and Smith Nursery
Willford De Berard . .	Army

Agriculture Inspection

Kenneth Carter . . .	Coast Guard
Eugene Foust	Inspector, Madera county

Fruit Production

Tolbert Hayes, Jr. . .	Mills Orchard Co. (enlisting).
Don Adams	Army.

DEGREE CURRICULA

In the list of graduates in the preceeding section on Placement, it will be noticed that some are listed as "Returned to school." These students have completed either the two year vocational or three year technical training course and have elected to return to the California Polytechnic school to complete requirements for the Bachelor of Science degree which the school has been authorized to grant by the State Board of Education in 1940.

The first freshmen students were accepted in this new degree curricula in the fall of 1940, while advanced students who have had preliminary work may be graduated with the first authorized class to receive the baccalaureate degree on May 29, 1942. At the beginning of the fall quarter 1941, 26 students made application for the Bachelor of Science degree to be granted upon completion of all requirements and presented at the May commencement excercises.

BACHELOR OF SCIENCE DEGREE

Bachelor of Science degrees are offered in the following curricula: Meat Animal Production, Crops Production, Ornamental Horticulture, Poultry

Production, Dairy Production, Dairy Manufacturing, Agricultural Inspection, Aeronautical Industries, Air Conditioning Industries, Electrial Industries, Mechanical Industries and Architectural Drafting.

UP-SIDE DOWN EDUCATIONAL PLAN

The California Polytechnic educational plan is characterized by the grouping of technical and "job-getting" training courses in the first two years. In the third and fourth year the student takes, in addition to courses in his major, those courses considered as "background." It is found that the student has more interest in the study of natural and social sciences, and even cultural arts, when he first has acquired a thorough foundation of practical knowledge and skills relating to his major interest.

Under the Polytechnic system, at whatever point a student leaves school, as many are bound to do because of finances, marriage, needed at home, offered a job or other cause, he has a maximum knowledge of skills which will enable him to earn a substantial living. Naturally, if he is able to complete the four year course and get his Bachelor of Science degree his opportunities for success will be greatly increased. But the "up-side down" educational pattern definitely improves the immediate earning capacity of those students who complete their formal education after one or two years of college.

This plan makes it possible to run the two-year and three-year curricula which do not lead to a degree, closely parallel with the four-year program, and enables students who graduate with a vocational or technical certificate to return to school and, without too much shifting of courses, complete the final year or two leading to a degree.

TEACHER TRAINING

The Agricultural Teacher Training program has been using facilities of the California Polytechnic School for the training of prospective vocational agricultural teachers, and of teachers in service, since 1931. For the past

five years the Cadet training program has begun each August under a four to six weeks preliminary training program.

Of the 23 students who began their preliminary training in August, 1940, all had been placed in high school agriculture teaching work by August 15, 1941. Of these 23 students, 19 were graduates of the University of California College of Agriculture at Davis, one from Colorado State college and three from Utah State college. The three Utah State graduates had three years at Cal Poly.

The 1941-42 training period began August 1, 1941, with 25 graduates of recognized agricultural colleges taking the intensive preliminary training program of one month duration. Special classes taught by California Polytechnic faculty members and State Bureau of Agricultural Education staff members were designed to give the cadet techniques in teaching and additional skills in Agricultural Mechanics, Hog, Beef, Sheep, Dairy, Poultry and Fruit production. The object of the preliminary program is to enable the cadet (and the teacher trainer) to discover the cadet's weaknesses in his past training and to do something to correct those weaknesses.

At the end of the month, half of the total number of cadets with the greatest experience were sent out as cadet teachers into high school agriculture departments, located in what are called "critic centers." One group of four schools surrounds Stockton, and the other group is near San Luis Obispo. The other half of the group remained at California Polytechnic to continue with more advanced work of the same type that was offered in the August preliminary course. At the middle of the high school year, about February 1, those apprentices who had actually been doing work as cadet teachers in the high schools returned to California Polytechnic for their advanced training and those students who had remained at the Polytechnic took their places in agricultural departments of the high schools.

NEW CURRICULA AND COURSES

Two new curricula have been added to the offerings of the college during the past year. Both curricula came out of a reorganization of existing courses rather than by the addition of new courses.

ARCHITECTURAL DRAFTING

A new course group in Building Estimating, Quantity Survey and Architectural Drafting, started in the fall quarter of 1940, was reorganized into an Architectural Drafting curricula, offering a vocational certificate for completion of two years and a technical certificate for completion of the three year course. No degree course in this curricula has been arranged, as the objective of this course is to train the student to obtain employment as a draftsman in the building industry and its allied industries rather than as an architect. However, it is expected that the graduate will be qualified to enter an architect's office as a junior draftsman.

MECHANICAL INDUSTRIES

The other new curriculum is Mechanical Industries. It too came from a reorganization of existing courses with such additional work as could be provided without additions at this time to the teaching staff. The purpose of the Mechanical Industries course is to train students to enter employment in the design, maintenance and operation of mechanical systems. It is the objective of the two-year and three-year courses to train men primarily for the field of operation and maintenance. The four-year course leading to the degree of Bachelor of Science is planned to give sufficient training so that the student completing it will be able to plan and draft heating, piping, air conditioning, refrigeration, plumbing and electrical systems as used in public buildings, factories, or warehouses. It further offers a good background to enter the oil industry and many other mechanical fields.

NEW COURSES LISTED

To round out curricula offerings, several new courses were added, in addition to those necessary under the Architectural Drafting and Mechanical Industries curricula. Among these new courses are: Live Stock Seminar, Hatchery Practice, Secondary Phase, Civilian Pilot Training, Introduction of Vocational Agricultural Education, Horse Husbandry (Thoroughbred Breeding), Plant Breeding, Journalism Practice and Agricultural Refrigeration.

The new course in Agricultural Refrigeration has received press notices all over the United States because its principles are so important to the millions of small farmers in this country. Requests regarding the course have been received from such wide-spread points as Kanekee, Illinois in the north; Baton Rouge in the south; Newark, New Jersey in the east, and the Hawaiian Islands in the west. The purpose of this course is to train all agricultural students so that they will be able to construct the necessary equipment to provide on their home farms the means of quick-freezing and holding perishable foods in large quantities for their use at later periods. It also trains students in the elements of cold storage locker management, an industry which is rapidly coming to the fore.

At the Voorhis branch of Cal Poly, new courses were added in Bee Inspection, Citrus Marketing, Tree Surgery, Farm Surveying, Crop Pest Control, and Weights and Measures. The Weights and Measures course, added to the Agricultural Inspection curricula, is the first course of its kind to be offered in the United States and prepares agricultural inspection students to become county sealers of weights and measures.

PROJECTS AND PROJECT FUND

PROJECT SYSTEM

California Polytechnic school has become known throughout the nation as a college based upon "doing" practices of commercial scope. The feature of the

training method involves virtually all of the facilities of the entire institution, including buildings, equipment and land.

Each student is expected to engage in some project of commercial caliber. Agriculture students raise and market meat animals, such as swine, sheep and beef cattle. They conduct dairy and poultry enterprises, either with their own foundation stock, or by contracting for some of the school's project animals or birds. They raise various plant crops and ornamentals. The students in the industrial division have projects of similar commercial scope, such as rebuilding airplanes, constructing and operating air conditioning machinery, running the college power plant and keeping the many electrical devices in good condition.

The ability of students to market many thousands of dollars worth of agricultural and industrial products annually is due to the availability of a project revolving loan fund, which under careful management by department heads, has grown from a few thousand dollars, to its present size of more than $50,000.

The status of the revolving fund as of November 30, 1941, is as follows:

PROJECT FUND

Balance Sheet as of November 30, 1941

Assets

Current				
Cash in bank		$6 822.30		
On hand		15.00	$ 6 837.30	
Accounts Receivable		14 362.61		
Less Reserve for Doubtful Accts.		245.85	14 116.76	
Inventories:	Live Stock	27 048.38		
	Feed	10 095.34		
	Industrial Dept. Supp.	2 721.46	39 865.18	$60 819.24
Fixed and Deferred Assets				
Equipment				695.68
Prepaid Accounts				1 041.48
Total Assets				62 556.40

Liabilities

Current

Notes Payable	$8 300.00	
Accounts Payable	805.83	
Accrued Accounts	1 105.40	
State: Livestock Expense	698.65	$ 9 512.58
Accumulated Income, November 30, 1941		$53 043.82

PROJECT SUMMARIES - SAN LUIS OBISPO

Meat Animal Production

Beef: sixty different boys operated 23 projects comprised of 130 head of cattle. The approximate value of their projects was $14,000.

Swine: sixty-two different boys operated 40 projects comprised of 567 feeder pigs. The approximate value of their projects was $11,340. (Ten boys also operated ten sow and litter projects.)

Sheep: thirty-five boys operated about seven projects of 50 or 60 fat lambs to a pen. The approximate value of their projects was $3,500.

In addition to raising livestock under commercial conditions to sell on the market, many of the students also gain valuable information regarding livestock from experiences in showing their student-owned project animals in open-classes at several of the larger livestock shows in the state. Last year the student-exhibited livestock had outstanding success, indicating their feeding methods were equal to those of the finest breeders in the west.

Dairy Industries

During the past school year, 19 dairy students owned 70 animals in their dairy project work. During the past calendar or testing year, the average number of 44 cows in milk, produced 12,470 pounds butterfat or an average of 338 pounds per cow. This product was sold for approximately $8,100.

In addition, dairy students operated the school dairy herd which produced 17,197 pounds of butterfat worth over $11,000. Considerable surplus stock was

also raised and retained to build up the herd or sold. During the last fiscal year, the school dairy made a net return of over $4,000 with animals being inventoried at the same value as previous years.

Ornamental Horticulture

This was the first year in which the project system as operated in other departments was put into effect in this department. In previous years the students of this department were paid for campus maintenance work and the propagation of shrubs, flowers and trees only. With the maintenance work continued on the same basis, project activities were begun with 22 boys operating 16 projects in bedding plants, pot plants and lining-out stock. The boys bought their own seeds or made their own cuttings and the school furnished the equipment and the use of the land. At the time of sale the boys will get 60 per cent of the gross profit and the project fund will receive 40 per cent on the pot and bedding plants and on the lining-out stock the student will receive 70 per cent and the project fund 30 per cent. Up to the present time no actual sales have resulted since the projects operate on a one and two year basis, but it is estimated that each boy will average about $10 per month for his project earnings.

In maintenance work the students put in one and three-fourths acres of lawn along the highway leading into the school. In this same area they planted 2000 background shrubs and trees. They also completed the landscaping and planting of trees around the air conditioning building.

Poultry Production

The poultry plant of the school is recognized as being unique in its method of teaching poultry husbandry by the project method, whereby students on a cooperative basis are responsible for the entire care and operation of this commercial poultry plant of more than 5000 birds. Each student selects a pen or unit or some phase of the operation and carries it as his project. The

plant had at the beginning of the school year in September, 2900 laying birds including White Leghorn, Barred Rocks, Rhode Island Reds, and Dark Cornish. During the past year the project flocks have produced 547,000 eggs which the students have marketed. Most of these have been sold direct to the consumer through the poultry sales house giving the students actual marketing experience. They also have produced and sold 46,000 baby chicks and hatching eggs; more than 25,000 of these chicks went to 70 high school vocational agricultural students in more than 45 high schools in California. Total project sales last year were $15,482.

Some of the student-owned pens were entered in the 1940-41 California Egg Laying Test held in Modesto, California. As far as is known these are the only student-owned pens entered in any official laying contest in the United States. In competition with some of the largest commercial poultry producers in the country, one pen of 26 student-owned white leghorn pullets placed fourth in the championship class, second in production of large eggs, and third in market value of eggs. From the same pen of student-owned birds, one White Leghorn placed third high out of 650 entries, laying 320 eggs with a market value of $6.75. For the first month of the 1941-42 California Egg Laying test another student-owned pen of pullets placed second in the Championship class with 630 eggs for the 26 birds during the month.

Other poultry project activities:

23 laying projects completed.
21 leghorn brooding projects completed.
6 meat bird projects completed.
8 turkey brooding projects completed.
610 turkeys raised and dressed for market.
2400 individually pedigreed chicks hatched and reared.
785 pedigreed pullets trap-nested.
7600 chicks hatched and brooded.
4200 birds dressed and sold for market.

$1,527.56 - Student project income on project operation.
$3,225.87 - Student labor income on odd jobs and summer work earned from plant operation.

PROJECT SUMMARIES - VOORHIS UNIT

At the Voorhis branch, the project work is carried on in a somewhat different manner than at San Luis Obispo. Due to the nature of the enterprises in the plant field, the work is concentrated into group projects - that is, the fruit production students handle the entire grove of citrus as a unit. The cultivation, irrigation and survey work is done entirely by the student group, plus a major portion of the harvesting and pest control. The same procedure is followed to some extent by students majoring in ornamental horticulture and inspection work, in relation to various areas on the school property.

Fruit Production

Students of this department operate the school's 28 acres of bearing citrus and five acres of avocados as a group project, as mentioned above. In addition, this is the second year of operation by students of this department of a leased citrus grove. The grove, consisting of five acres of lemons and five acres of navel oranges, was somewhat run down when taken over. But by careful management, the general health of the grove has been improved materially. This is evidenced by the fact that the grove has more than paid expenses during the first year of operation under the project fund.

One student in the department started an individual project. He has 1500 avocado seeds set out, with the production goal of 500 first grade trees, to be used as new plantings on his home ranch.

Truck Crops Production

The students of this department have been operating a six acre tract of land adjoining the school property, in addition to the four acres of school land available for crops. The leased land has been planted to vegetables, for instructional use primarily, although a considerable amount of produce has been consumed by the school cafeteria and local retail markets.

Ornamental Horticulture

Students of this department are raising some 800 Primula plants in the greenhouse. A part of these will be sold through commercial nursery establishments and the rest set out on the school grounds. These latter will add to the color about the campus and will, in addition, yield a seed crop which will be valuable. Another such project is the raising of over 1000 Cinerieria plants for a similar purpose. There are three students who have had projects in the propagating of ornamentals which they have disposed of either through commercial houses or through landscaping projects which they have carried on with private individuals. This coming year, in addition to the group projects, there are four students starting flower seed, Tuberous Begonia and Gloxenia growing projects, all of which have a ready market under present conditions.

STUDENT LABOR

POLICY

The two phrases, "learn by doing" and "earn while you learn", which have been used considerably in describing the unique educational plan of the California Polytechnic school, refer to the opportunities open to students to gain practical experience in the field of their major work and at the same time earn money to assist them in meeting expenses. In addition to the opportunities in project activities which have previously been mentioned, the California Polytechnic school has established a policy of using a maximum number of students to operate the entire campus and farm of 1440 acres. The average earning is several times as great as the typical college where the adults are employed full-time to do a large part of the kind of work done by students at California Polytechnic School. At California Polytechnic the school employs no adult gardeners or janitors, no dining hall help except cooks, and only two farm foremen who instruct students in maintenance, repair and farm operation work.

This combination of work experience plus opportunity to assist in defraying expenses, has permitted hundreds of youths each year who could not otherwise get a technical college education, to train themselves for useful employment. A recapitulation of a typical month of student work under State, Project Fund, Cafeteria-Dormitory Fund and Federal NYA follows:

ANALYSIS

October, 1941
(from payrolls)

* * *

Classification	No. of Employees	Payroll	Totals
STATE			
Administration - San Luis Obispo			
Offices	4	$ 39.45	$ 39.45
Instruction - San Luis Obispo			
Agriculture	3	10.20	
Industry	6	30.00	
Related Subjects	5	47.40	
Library	1	34.80	
Printing and Mimeographing	1	33.90	156.30
Maintenance and Operation - San Luis Obispo			
Buildings	23	398.40	
Grounds	9	301.50	
Automobiles	2	120.00	
Heat, Light & Power	2	151.15	971.05
Farm - San Luis Obispo			
General	40	368.55	
Meat Animals	7	217.50	
Dairy	1	5.40	
Poultry	3	74.40	
Orchard	3	33.40	
Field Crops	5	10.15	
Agricultural Mechanics	1	15.60	725.00
Total - San Luis Obispo	116		1,891.80
Administration - Voorhis Unit			
Offices	1	3.00	3.00
Instruction - Voorhis Unit			
Agriculture	9	63.30	
Library	1	8.85	72.15

Classification	No. of Employees	Payroll	Totals
Maintenance and Operation - Voorhis Unit			
Buildings	5	$ 58.80	
Grounds	26	247.80	
Automobiles	1	29.85	
Repairs	5	28.50	$ 364.95
Farm - Voorhis Unit			
General	30	150.30	150.30
Total - Voorhis Unit	78		590.40
Total - San Luis Obispo & Voorhis State	194		2,482.20
PROJECT FUND - San Luis Obispo			
Dairy	25	467.30	
Meat Animals	17	181.65	
Poultry	21	374.90	
Voorhis	9	25.35	1,049.20
Total Project Fund	72		1,049.20
CAFETERIA-DORMITORY FUND			
San Luis Obispo			
Cafeteria	68	1,219.05	
Dormitory	25	252.50	1,471.55
Total Cafeteria-Dormitory Fund San Luis Obispo	93		1,471.55
Voorhis Unit			
Cafeteria	12	174.95	
Dormitory	8	93.00	267.95
Total Cafeteria-Dormitory Fund Voorhis Unit	20		267.95
Total Cafeteria-Dormitory Fund San Luis Obispo & Voorhis	113		1,739.50
FEDERAL NYA	60		946.40
Grand Total Students' Payroll	439		7,956.80

SUMMARY

A comparison of the figures shown here with the report for October, 1940, will indicate an increase in student labor of more than $1,300, while the

annual payroll including summer labor, gives a grand total of about $70,000 earned by students as part-time employment.

Under the heading, Project Fund, expenditures for student labor in the dairy, poultry, meat animals and other departments do not include additional labor income from self-owned projects. Last year more than $8,000 was paid out to students for labor from self-owned projects and does not show in the above analysis. Thus the grand total of student earnings on the two campuses is approximately $78,000.

SCHOLARSHIPS, LOAN FUNDS AND GIFTS

SCHOLARSHIPS

Thirty-nine students were in attendance at the California Polytechnic school during the past year as a result of being assisted financially by scholarships provided by various agencies.

Sears, Roebuck and Company

Twenty-eight of the scholarships were donated by Sears, Roebuck and company. In addition to continuing the awarding of 25 freshmen scholarships of $100 each to outstanding applicants chosen by the college on the basis of need, scholastic ability, and educational objectives, Sears, Roebuck added three more scholarships in 1941. Two of these are regional scholarships of $100 each awarded as part of a livestock improvement program in areas of San Jose and Fresno. The third new scholarship is a $200 award to the sophomore who was the outstanding recipient of the previous year's Sears, Roebuck freshman award.

South San Francisco Union Stockyards Company, Consolidated Chemical Industries, Inc., and Safeway Stores Scholarships

Scholarships of $100 each were awarded by South San Francisco Union Stockyards Company, Consolidated Chemical Industries, Inc., and Safeway Stores to outstanding Future Farmers for excellence in production of market live stock

as demonstrated at the Future Farmers of America Marketing Day held at Stockton in 1941. One company gave the award to a beef producer, one to a lamb producer and one to a swine producer. The type for which the particular scholarship is given rotates from year to year.

California Cattlemen's Association, Poultrymen's Cooperative Association, Challenge Creamery, and E. C. Loomis and Son Scholarships.

Other first-year scholarships of $100 each were offered also in 1941 by the California Cattlemen's Association, The Poultrymen's Cooperative Association of Southern California, Challenge Creamery; and a $50 scholarship offered by E. C. Loomis and Son of Arroyo Grande went to a graduate of the vocational high school agricultural department of a San Luis Obispo county school.

Advanced Scholarships

Scholarships of $100 each were offered by Philip R. Park, Inc., and Van Camp Laboratories to advanced students enrolled in Animal Husbandry, Dairy Industries or Poultry Production.

Carl Raymond Gray Scholarships

Four additional scholarships of $100 each are open to Polytechnic enrollees, or to boys entering other California agricultural colleges. In 1941 two of the four recipients of these Carl Raymond Gray (Union Pacific Railroad) scholarships elected to attend California Polytechnic.

LOAN FUNDS

There are four student loan funds to temporarily assist worthy students. Loans from these funds are made for varying periods of time and are passed upon by a faculty committee.

The principal source of loans is the Leopold Edward Wrasse loan fund. Approximately $1,000 was available for loans during the year 1941-42.

The San Luis Obispo Rotary Club has established a student loan fund as has the Club composed of wives of Polytechnic faculty members. There is also an

Accommodation Loan Fund set up by the Associated Students and the Women's Faculty Club.

The Alumni Association is now sponsoring a drive to raise funds for a loan fund to be known as the Wilder Memorial Loan Fund.

GIFTS

During the calendar year 1941, many valuable gifts have been presented to the California Polytechnic school. Donations to the Scholarship and Loan Funds were discussed directly above.

In addition to these valuable grants, Mr. Charles E. Perkins of the Alisal Corporation, Solvang, gave the school a thoroughbred mare, Chic Flora, in foal to the Derby winner, Flying Ebony. Mr. A. W. DeVeau of the M and D Ranch, Vista, presented the school with a thoroughbred mare, Myo, in foal to Wax Wing.

Stallion services to the thoroughbred mare project were donated by the following California Thoroughbred breeders.

Mr. Carlton F. Burke, Green Field Farm, Camarillo - *Soon Over

Mrs. Frank Carreaud, Trails End Ranch, Canoga Park - War Glory

Mrs. Vanderbilt Phelps, Los Laureles Rancho, Monterey - *Cynic

Mr. Charles S. Howard, Ridgewood Ranch, Willits - Son O'Battle

Mr. Charles E. Cooper, Rancho San Luis Rey, Bonsall - Bon Homme

Mr. Walter T. Wells of Rancho Oro Primero, North Ridge Estates, Los Angeles, furnished the school with a kodochrome film of the 1941 Poly Royal, a "Country Fair on a College Campus."

Mr. J. B. Livingston of San Miguel presented the school with an excellent Poland China boar, "Groves Sir Lawson."

Mr. Carlton F. Burke of Green Field Farm, Camarillo, made a gift of a registered Suffolk ram.

The Sears, Roebuck and Company bought and donated a magnificient young

Jersey bull, Brampton Poly Sears. The young bull was purchased from the world-famous B. H. Bull and Son Jersey Farm, Brampton, Ontario, Canada, and is considered individually to be the finest Jersey ever brought into California. His sire's dam, Brampton Basilua - the world's champion Jersey cow - holds three records over 1200 pounds of fat, and one record of 1313 pounds butterfat.

THOROUGHBRED BREEDING PROJECT

PROGRESS OF PROJECT

The close of the first full year of operation of the constructive breeding program being conducted cooperatively by the California Breeders' Association and the California State Polytechnic School at San Luis Obispo, finds much progress during the year.

The off-spring from the project to date is two colts and a filly, to be entered in the mid-summer sale conducted by the association. The project has given animal husbandry students an opportunity to work with thoroughbreds, study feeding methods, watch the progress of the foals and become generally acquainted with the skills and practices in thoroughbred horse production.

The quarters, which were described in complete detail in the 1940 annual report, have been completed and improved and additional green pasture provided.

RECORD OF MARES

The record of mares now on hand follows:

Vibrant, a black mare by *Light Brigade---Lady Mad Cap donated to the program by Charles E. Perkins, foaled March 9, a brown colt by *Soon Over. Returned to *Soon Over for service in 1941. Service donated by Carlton F. Burke.

Fascicle, a bay mare by Gallant Fox-Cluster, donated by Walter T. Wells, foaled April 13, a brown filly by By Pass 2nd. In foal to War Glory. Service donated by Mrs. Frank Carreaud.

Bon Eva, a chestnut mare by Bon Homme-Evalyn Harrigan, donated by Bing Crosby, foaled April 22, a chestnut colt by Naishapur. Bred to *Cynic. Service

donated by Mrs. Vanderbilt Phelps.

Shasta Red, a brown mare by Bistouri-Red Lita V, donated by Charles E. Cooper. Bred to *Craig Park. Service donated by Charles E. Cooper.

Myo, a bay mare by Ponce de Leon-Edna Stewart, donated by A. W. DeVeau in the fall of 1941, in foal to Wax Wing.

Lone Star Miss, a bay mare by Gnome-Donna Mamona, donated by Walter H. Hoffman, Jr., foaled May 1, a bay colt by High Step. Foal died at one week of age from navel infection. Mare bred to Son O'Battle. Service donated by Charles S. Howard.

Chic Flora, a bay mare by *Chicle-Glen Flora, donated by Perkins, in the fall of 1941, in foal to Flying Ebony.

The committee is now lining up the breeding program for the mares in the spring of 1942.

BOOKS DONATED

A good library of books and periodicals pertaining to thoroughbred breeding is being established, through donations of breeders, and purchases. One breeder has paid up a California Polytechnic membership in the Horse and Mule Association, which brings all literature and services of this national agency. Other donations included a set of historical books on English horses, and six copies of the Horseman's Handbook on Practical Breeding, by John F. Wall. A set of Wall's "Thoroughbred Blood Lines," was another valuable edition donated.

Besides the educational value of this program, it has given the thoroughbred industry in the state some assistance in attaining greater recognition as one of the legitimate animal industries of California.

BUILDING PROGRAM, COMPLETED

MAJOR CONSTRUCTION

The 1940 annual report on the progress of the California Polytechnic school indicated that two buildings were to be constructed in 1941. One was a

unit of barracks for the NYA, and the other was an administration and classroom building.

The first, built by the Federal Government on land leased from the school, provides housing space for an additional 120 NYA students, and dining space for 250 persons. This unit follows the same modernistic style of architecture that is used in all buildings comprising the NYA group, and was completed in May, 1941.

The second, the administration and classroom unit, built from funds budgeted to the school, will be the dominant structure on the San Luis Obispo campus. With its 52,000 square feet of floor space, ample room will be provided to house the administrative offices of the school, the necessary service departments, and classrooms for a major part of the lecture classes.

OTHER UNITS COMPLETED

Other units completed during the year were:

Temporary Dormitories and New Cafeteria

Dormitories are comprised of six 42-man structures and the cafeteria is a 300-man structure. These structures were built after it became obvious to school officials that an emergency housing shortage existed in the city due to the influx of army officers and camp workers which would preclude the housing of half the regular student body in private homes as had been the custom in the past. These units were located and constructed in such a way as to make possible their use later as warehouses, when the acute housing shortage became adjusted and these buildings would no longer be needed as living quarters.

Green House Unit

A much needed glass house for the propagation of ornamental plants was constructed on the Voorhis campus of the California Polytechnic school. It is the first of several such units planned. Its steel frame and modern gas heating plant make it an economic modern unit that should serve the institution for many

years. This building was constructed by contract. The propagation house and equipment room in connection with this green house unit were built by the NYA organization. The school furnished the materials and the NYA furnished the labor for the building of both structures.

NYA Pre-Fabricated Building

In September, 1941, the NYA organization completed construction of a pre-fabricated steel shop building on ground leased from the California Polytechnic School. This building consists of a machine shop room approximately 40' x 120', and a radio shop, 40' x 40'. This is a well constructed building and will last for a great many years. It is being used jointly by the NYA in their production program, and the school for instruction in the National Defense Training Program.

NYA Sheet Metal Shop

This building is a wood frame building with stucco exterior. It was scheduled for completion by the first of December, 1941, but the shortage of material and labor has held up completion of this shop building. It will probably be finished by the last of January, 1942, and will house the NYA sheet metal production program and the school National Defense Training Program for aircraft sheet metal workers. This building, like the one mentioned above, is being constructed on property leased from the California Polytechnic school by the Federal Government.

C O N C L U S I O N

No one can foretell with any confidence what will happen in the next few months or even in the next few weeks, or can outline the exact kind of a world in which we will have to live during the years ahead. However, this war, as with all wars, will eventually end. When, and under what circumstances, we do not know. Of one thing we may be fairly certain. We will then be presented with new problems of a magnitude and scope never before encountered.

We can be sure of one thing about our war program - we will bring about

whatever industrial expansion is necessary to strengthen our army, navy and air force. These make up our first line of defense. And it is along this first line of defense that many former California Polytechnic students are now serving, and it will be along that first line of defense that many more of our students may be called to serve.

We are proud that the California Polytechnic school has been able to offer the type of training needed by the defense industries, proud that we have been able to train our share of that vast army of skilled defense workers. But the results of our present war effort depend not only upon what we do to strengthen the first line of defense, but also upon the intensity with which we can produce "Food for Victory." In the program of industrial expansion you can get a new steel plant in a few weeks, and you can run several shifts a day to produce what is needed. But it takes time to build a larger dairy herd, or raise a new flock of chickens. We must have an army of skilled farm workers and they have to be trained too.

Those of us who are interested in maintaining democratic institutions must work now as never before to strengthen democracy and make it work more effectively. We must build it into a stronger instrument for action; action to strengthen both our first line of defense and that equally important second line - the physical, mental, spiritual and economic well-being of all our people. Our actions must serve better the needs of all our people, not a few, not of just a majority, but of all.

Whatever the outcome of the war, it is certain that world relationships will be very different from the past. This will require future adjustments within both agriculture and industry. At the conclusion of the war, there will be an even more acute need to make adjustment to peace-time requirements in such a manner as to avoid the creation of new social problems.

The faculty at California Polytechnic school has accepted the challenge for an "all-out" effort to train our quota of the millions of additional industrial and agricultural defense workers needed for the year ahead. There will be no let-down on this vital program for defense training. And neither will there be a let down when we are called upon to serve in creating an orderly, peaceful and prosperous world during the readjustment period. This is a momentous period in the history of America and the world. It is a time to try the souls of men and it is a time to inspire them, too. The educators at California Polytechnic have been inspired, I believe, and we are making a concerted effort to strengthen our nation - an effort which we hope may progress on such a broad front, not only while we are endeavoring to win the war, but during the inevitable readjustment period to follow, that we may find solutions for the important social problems confronting agriculture, industry and our whole national economy.

The California Polytechnic school is now doing its part in the all-out war effort, but you have the pledge of the administration, instructors and students that we stand ready to exert whatever extra energy is needed to bring final and complete victory to America's cause.

Sincerely yours,

Julian A. McPhee

President, California
Polytechnic School