



1950-1951

ANNUAL REPORT

**CALIFORNIA STATE POLYTECHNIC COLLEGE**

SAN LUIS OBISPO

SAN DIMAS

POMONA

1901-FIFTY YEARS OF PROGRESS-1951



CALIFORNIA STATE POLYTECHNIC COLLEGE

ANNUAL REPORT

1950-1951

to the

CALIFORNIA

STATE BOARD OF EDUCATION

AND THE

STATE DEPARTMENT OF EDUCATION

San Luis Obispo, California

March, 1951



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## FOREWORD

As President of the California State Polytechnic College, it is my privilege to submit to the State Board of Education and the State Department of Education this report on the progress of the college during the 1950-1951 school year.

As the college celebrates the 50th anniversary of its founding as a state educational institution, it seems appropriate to expand this report to include some of the highlights in the half-century struggle to gain recognition for the educational ideal expressed by its founders.

Many have been the adversities faced by this institution in the various periods of its development. Some of these have threatened the very existence of the school which has always been faced with the heart-breaking problems of pioneering an unorthodox educational philosophy.

The present college administration has, through the stress and strain of a major economic depression, an emergency program of training defense workers, a three-year World War II naval training program, a sky-rocketing post-war enrollment, with its resulting problems, earnestly attempted to follow the advice of the founding fathers who believed it was the duty of this institution to train students to "use their hands as well as their heads"---to give occupational training as well as "higher education."

Whatever success this college has achieved in its objective of making such educational opportunity available to the youth of this State has come as the direct result of the active support and foresight of sympathetic members of the State Board of Education, State Department of Education, and the State Legislature.

Respectfully submitted,

*Julian A. McPhee*

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Julian A. McPhee, President



# PART I

## HISTORY

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### Beginning of an Ideal

It was over 100 years ago on a cold, rainy morning in December that the seed which was to become the ideal behind the California Polytechnic school was planted in the mind of a young man as he walked the muddy streets of San Francisco.

That man was Myron Angel, a newly graduated West Pointer, who had just crossed the plains on foot from Fort Leavenworth to San Diego. His passage by brig from San Diego had taken his last cent, and he walked the streets of San Francisco, penniless, ragged, and hungry.

A busy man hailed him, saying, "Boy, do you want a job?"

Angel replied eagerly that he did.

"Get up on that building and nail on those shingles," the man ordered.

"It's going to rain, and that roof must go up in a hurry. I'll give you \$8 a day," the unnamed man added.

Angel, in latter years, described the rest of the incident in these words:

"I was appalled at my incompetence for the task, and blurted out, 'Mister, I never drove a nail in my life.' 'Too bad,' the man said, as he rushed for another boy, who looked as if trained for work, and who got the job. I could have told the man a great deal I had learned in books, but nothing about building a house."

What happened to Myron Angel on that December in 1849 might have been just an interesting incident in his life. Instead, it became a driving, inspiring force which 45 years later inspired Angel to lead a fight for the establishment in San Luis Obispo of a school which would "teach the hand as well as the head."

### Founding of Cal Poly

The first bill to establish a Polytechnic normal school at San Luis Obispo was introduced to the legislature in 1895 by Senator S. C. Smith of Bakersfield, whose aid Angel had enlisted in support of the cause. The legislature adjourned without taking action on the bill. The fight to put the founding act through the legislature was a difficult one. The bill failed to pass the Senate at three sessions--1895, 1897, and 1899. Introduced in the Assembly in 1897 it was vetoed by Governor Budd. Again in 1899 it failed to pass the Assembly when sponsors of a state paid bounty on coyotes voted against the bill as revenge against the San Luis Obispo assemblyman who had opposed the coyote bounty.

Introduced again in January, 1901 in the Senate by Senator Smith and in the Assembly by Warren Johns, the Senate bill was passed by both houses and was signed by Governor Gage in March. The bill included an appropriation of \$50,000 for purchase of site, construction and furnishing of necessary buildings, and the maintenance for two years of the school. The act was to take effect and to be in full force from and after January 1, 1902.



### Far-sighted Objectives

The legislative act which created the school included the statement that

"the purpose of the school is to furnish to young people of both sexes mental and manual training in the arts and sciences, including agriculture, mechanics, engineering, business methods, domestic economy, and such other branches as will fit the students for the non-professional walks of life."

It further stated that

"this article shall be liberally construed to the end that the school may at all times contribute to the industrial welfare of the State."

The liberality of this measure provided for growth and change and later was a great benefit in the development of an institution which could furnish not only a wide range of subjects and courses but also provided for an educational program that could progress from a secondary school level to that of a fully accredited degree granting college.

### A Humble Beginning

On a "sightly tract" of 281 acres within a mile of the San Luis Obispo courthouse, purchased on May 26, 1902, for less than \$8,000, the newly appointed Director, Mr. Leroy Anderson, a graduate of Cornell, paced off sites for the new administration-classroom building and the dormitory. The cornerstone of the administration-classroom building was laid January 31, 1903, but it wasn't until October 1, 1903 that Director Anderson was able to call together his three instructors, and the first 15 students to meet in the as yet unfinished parlor of the dormitory building.

### First Enrollment Reports

Director Anderson's report on enrollment for the first year (1903-04) showed a total of twenty students. Of the 20, seven came from San Luis Obispo county and thirteen represented eight other counties.

By November 1, 1904, enrollment had grown to 52 of whom 15 were students who had been in attendance the previous year. The enrollment that year represented 16 counties.

Enrollment for 1905-06 was reported as 100, with a total of 8 students (4 boys and 4 girls) graduating in June of 1906. The following year enrollment had climbed to 117. The 1907-08 enrollment of 134 represented 18 California counties, two other states, Japan and India.

### Instruction Level Changes

The school opened as a state vocational high school and was the pilot school in California pioneering in establishing and perfecting vocational education along agricultural and industrial lines. At the same time it was developing a strong homemaking program for girls. From its establishment until 1921 it was administered by a local board of trustees appointed by the Governor. In 1921 administration was transferred to the State



Board of Education. When this vocational education program spread to the local high schools of the state and became adequately established, the State Board of Education saw fit to continue the role of Cal Poly as a pioneer in vocational education and authorized it to raise its level of instruction in 1927 to that of a junior college so that it might serve this new field of education in developing a practical approach to occupational training.

In 1933, when the school was made a direct administrative branch of the State Department of Education and at the same time was placed under the guidance of the Chief of the Bureau of Agricultural Education, it was changed from a junior college to a two-year and three-year technical college.

The value of this "learn-by-doing" approach to vocational education that had been pioneered by Cal Poly in these early years was recognized in 1936 when other colleges began accepting Cal Poly degree transfer students and in 1940, when the State Board of Education authorized the college to grant the Bachelor of Science degree.

The University of California, for a period of 15 years gave full credit for skills and methods courses given by Cal Poly to university agriculture teacher candidates who received all their post-graduate teacher training at Cal Poly.

When Senate Bill No. 788 was passed in 1946 allowing state colleges to give a fifth year of instruction, Cal Poly expanded its services and was accredited by the State Board of Education to recommend students directly for the special secondary credential in vocational agriculture and the special secondary credential in agriculture.

Early in 1947 the State Board of Education granted the college the privilege of giving the training for prospective physical education teachers and recommending graduates for the special secondary credential in physical education.

In April, 1948, the State Board of Education approved the college to recommend graduates for the general secondary credential in any of the following majors: social studies, mathematics, physical science and general science, life science and general science, agriculture, and physical education.

On October 1, 1949, the college was approved to grant the degree of Master of Arts with concentrations in agriculture, biological science, mathematics, health and physical education, physical science and social science.

#### Scope of Offerings

From the very beginning there was concern on the part of backers of the school that its offerings might be limited despite the broadness of the founding act. To forestall a possible attempt to open the school with offerings limited to agriculture, a local committee recommended to the trustees that from the very beginning courses be offered in agriculture, mechanics and domestic science. Said Myron Angel, "The Polytechnic school should be such as to meet the changing demands of the social evolution now taking place." That it has done just this during the intervening years is attested by the fact that the college now offers the Bachelor of Science degree for completion of the four-year curriculum in the following majors:



Agriculture---Agricultural Engineering, Agricultural Inspection, Animal Husbandry, Field Crops, Truck Crops, Deciduous Fruit Production, Citrus Fruit Production, Dairy Husbandry, Dairy Manufacturing, Ornamental Horticulture, Poultry Husbandry, General Crops Production, Soils Science.

Engineering---Aeronautical Engineering, Air Conditioning and Refrigeration Engineering, Architectural Engineering, Electrical Engineering, Electronic and Radio Engineering, Mechanical Engineering, Maintenance Engineering, Printing.

Liberal Arts---Agricultural Journalism, Biological Science, Mathematics, Physical Education, Physical Science, Social Science.

### Expansion of the College Plant

From the 281 acres and two buildings with which Cal Poly began classes in 1903, the college has grown until it now includes three separate campuses totaling about 4,650 acres. Unfortunately its growth in permanent buildings has not kept stride with its acquisition of land---the original San Luis Obispo campus plant has only 15.6 per cent of the permanent structures called for in its master building plan financed, while some of the other state colleges have as much as 80 per cent of their permanent structures completed, under construction or financed.

In 1938, the two million dollar completely equipped school and farm, now known as the Voorhis Unit, was deeded to the college by its owners, Charles B. Voorhis of Pasadena, and his son, former congressman Jerry Voorhis, for the express purpose of providing an expanded program of collegiate occupational training. This campus, designed for 150 students, has grown to the point where every facility is now taxed by an enrollment of nearly 400 students that have been drawn there with only four plant science majors.

The Cal Poly approach to collegiate occupational training was again recognized by a substantial gift in November, 1949, when the W. K. Kellogg Foundation donated their four million dollar, 800 acre ranch near Pomona to the college. The deed drawn up by the Kellogg Foundation specifically restricts the use of the property to the practical learn-by-doing type of instruction developed by Cal Poly. The California State Board of Education had assisted materially in the acquisition of this additional campus in January, 1949, by passing a resolution, requesting the California State Legislature to memorialize the Congress of the United States to make it possible for the college to acquire the property for educational expansion.

The most recently completed permanent structure is the Walter F. Dexter memorial Library, constructed at a cost of \$700,000 and occupied for the first time in October, 1949.



THE PRESENTEnrollment, Fall Quarter 1950

A total of 2767 full-time students registered at the San Luis Obispo campus of the college for the fall quarter, 1950, while a total of 392 men registered at the Voorhis campus during the same period---a total for both campuses of 3159.

The San Luis Obispo campus enrollment of 2767 exceeds by 67 the upper limit of enrollment for men at this campus as set by the Strayer committee survey for the year 1960. An additional quota of 900 women students for the San Luis Obispo campus has been set by the State Department of Education. At present no women students are enrolled as there are no adequate dormitory or physical education facilities available for them.

SAN LUIS OBISPO CAMPUS ENROLLMENT

<u>By Division</u>		<u>By Year</u>	
Engineering Division	1337	First year	771
Agricultural Division	1146	Second year	656
Liberal Arts Division	237	Third year	653
Graduates	47	Fourth year	585
	2767	Fifth year	55
		Graduates	47
			2767

Enrollment by Departments

<u>Agricultural</u>		<u>Engineering &amp; Industrial</u>	
Agricultural Engineering	182	Aeronautical Engineering	148
Agricultural Inspection	36	Architectural Engineering	195
Animal Husbandry	540	Air Conditioning & Refrig.	145
Field Crops Production	94	Electrical Engineering	133
Truck Crops Production	39	Electronics & Radio	189
Dairy Husbandry	128	Maintenance Engineering	19
Dairy Manufacturing	27	Mechanical Engineering	271
Fruit Production	25	Printing	46
Ornamental Horticulture	96		1146
Poultry Husbandry	82		
Soil Science	57		
Horseshoeing	15		
Citrus Fruit	16		
	1337		

Liberal Arts

Education	7		
Biological Sciences	37		
Mathematics	30		
Physical Education	94		
Physical Science	15		
Social Science	39		
Agricultural Journalism	15		
	237		
Graduate:			
Agric. Education	36		
Education	11		
	47		
		Total	2767



Place of Legal Residence

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COUNTY	MAR. 21 1946	NOV. 1 1946	NOV. 1 1947	OCT. 1 1948	OCT. 1 1949	NOV. 10 1950
ALAMEDA	119	35	63	85	108	106
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	1	2	0
BUTTE	1	1	4	6	10	10
CALAVERAS	0	0	0	0	0	1
COLUSA	2	2	1	2	3	12
CONTRA COSTA	7	13	12	30	37	45
DEL NORTE	0	0	0	1	1	1
ELDORADO	0	0	7	14	14	12
FRESNO	20	65	65	73	71	50
GLENN	1	3	5	10	16	14
HUMBOLDT	6	12	13	17	14	8
IMPERIAL	3	7	12	16	15	17
INYO	0	2	3	3	3	7
KERN	8	29	27	50	66	51
KINGS	8	18	17	17	15	17
LAKE	0	1	1	3	2	5
LASSEN	2	2	3	10	11	6
LOS ANGELES	163	397	439	588	651	596
MADERA	1	3	11	3	5	4
MARIN	2	3	10	11	17	14
MARIPOSA	0	0	2	1	2	1
MENDOCINO	1	9	13	7	6	6
MERCED	2	13	27	41	26	31
MODOC	0	1	4	4	6	5
MONO	0	0	1	0	0	0
MONTEREY	8	19	41	52	50	57
NAPA	7	4	4	7	10	5
NEVADA	1	3	4	5	6	5
ORANGE	12	40	59	78	93	84
PLACER	1	4	5	7	2	5
PLUMAS	0	0	0	0	1	0
RIVERSIDE	11	32	35	81	64	68
SACRAMENTO	5	13	27	38	42	46
SAN BENITO	1	5	9	11	10	7
SAN BERNARDINO	13	28	44	54	65	64
SANTA CLARA	15	43	53	53	73	79
SAN DIEGO	15	69	78	125	114	95
SAN FRANCISCO	19	34	61	53	66	68
SAN JOAQUIN	14	19	28	27	33	39
SAN LUIS OBISPO	134	175	427	225	215	199
SAN MATEO	6	22	28	37	42	43
SANTA BARBARA	19	32	64	89	108	120
SANTA CRUZ	10	28	33	32	31	34
SHASTA	3	1	5	5	5	5
SIERRA	2	2	2	2	2	1
SISKIYOU	0	4	4	3	7	6
SOLANO	0	1	5	11	11	12
STANISLAUS	7	15	38	43	63	46
SONOMA	8	19	21	25	38	31
SUTTER	0	2	9	11	12	9
TEHAMA	2	3	5	4	6	8
TRINITY	0	0	1	0	1	2
TUOLUMNE	2	6	3	1	1	3
TULARE	18	43	56	56	68	67
VENTURA	8	34	33	46	50	47
YOLO	3	2	4	2	4	4
YUBA	1	1	7	11	5	6
OTHER STATES	67	179	231	301	390	307
FOREIGN COUNTRIES		20	21	31	54	48
U.S. TERRITORIES				34	59	76
	655	1518*	2185*	2553*	2902*	2715*

\*NOT ALL STUDENTS REGISTERED AT THE SAN LUIS OBISPO CAMPUS WERE INCLUDED IN THIS SURVEY AS SOME CARDS WERE NOT AVAILABLE AT THE TIME THE STUDY WAS MADE. IN 1946 ACTUAL ENROLLMENT WAS 1571, IN 1947 IT WAS 2229, IN 1948 IT WAS 2575, IN 1949 IT WAS 2909, AND IN 1950 IT WAS 2767. HAD THE BALANCE BEEN INCLUDED IN THIS STUDY, SOME ADDITIONAL COUNTIES WOULD BE REPRESENTED.



# SUMMARY OF ENROLLMENT DISTRIBUTION

Following the trend which began in 1903 and has continued ever since, Cal Poly's enrollment is wide-spread throughout the state---in contrast to that of the regional state colleges. Fifty-four of the 58 counties in the state were represented in the fall of 1950.

In a San Luis Obispo campus enrollment breakdown, 307 students were registered from 42 of the 48 states. New York had the most out-of-state students with 25; Washington, Utah, Illinois, 19 each; Idaho and Nevada, 16 each; Arizona, Ohio, Oregon, 15 each. Seventy-one students indicated Hawaii as their legal residence while seven registered from Mexico, nine from Iran, six from Peru and four from Iraq; 19 foreign countries are represented.

The Voorhis campus fall quarter, 1950, enrollment distribution shows student from 25 of California's counties, seven other states, one foreign country and one U. S. Territory.

## Enrollment By Classes and Curriculum Level

Agricultural	Vocational	Technical	Degree
Freshmen	76	79	252
Sophomores	56	93	212
Juniors	1	82	214
Seniors	0	0	252
Fifth Year	0	0	20
Graduate	0	0	
	<u>133</u>	<u>254</u>	<u>950</u>

Total Agriculture 1337

Engineering and Industrial	Technical	Degree
Freshmen	70	250
Sophomores	82	179
Juniors	83	225
Seniors	0	236
Fifth Year	0	21
	<u>235</u>	<u>911</u>

Total Engineering 1146

Liberal Arts	Degree
Freshmen	56
Sophomores	60
Juniors	49
Seniors	59
Fifth Year	13
	<u>237</u>

Liberal Arts 237

Graduates	
Agricultural Education	36
Education	11
	<u>47</u>



Enrollment of Veteran and Non-Veteran Students

	Veterans	Non-Veterans	Total
Freshmen	159	612	771
Sophomores	244	412	656
Juniors	322	331	653
Seniors	399	174	573
Fifth Year	45	22	67
Graduates	25	22	47
	<u>1194</u>	<u>1573</u>	<u>2767</u>

Enrollment of Married Students

Public Law 346	542	
Public Law 16	93	
State Veterans	<u>36</u>	
Married Veterans	671	*Approximately 55% of veterans enrollment
Married Non-Veterans	<u>124</u>	
Total Married Students	795	†Approximately 28.7% of total enrollment

Comparative Enrollments by Years  
(San Luis Obispo)

<u>5 Yr. Intervals</u>	<u>1 Yr. Intervals</u>	<u>1 Yr. Intervals</u>
1903-04----20	1938-39----651	1945-46----819
1908-09----151	1939-40----780	1946-47----1571
1913-14----194	1940-41----739	1947-48----2229
1918-19----110	1941-42----711	1948-49----2575
1923-24----114	1942-43----570	1949-50----2909
1928-29----399	1943-44----80	1950-51----2767
1933-34----239	1944-45----128	

VOORHIS CAMPUS, SAN DIMAS

Enrollment, Fall Quarter 1950

	<u>Veterans</u>	<u>Non-Vets</u>	<u>Degree</u>	<u>Tech.</u>	<u>Voc.</u>	<u>Spec.</u>
Freshmen	48	98	115	16	12	3
Sophomore	50	53	84	13	2	4
Junior	62	46	87	21	0	2
Senior	24	11	31	0	0	2
	<u>184</u>	<u>208</u>	<u>317</u>	<u>50</u>	<u>14</u>	<u>11</u>

Enrollment by Departments

	<u>Total</u>
Agricultural Inspection	145
Citrus Fruit Production	63
General Crops	47
Ornamental Horticulture	92
Pre-transfer to San Luis Obispo majors	<u>45</u>
	<u>392</u>



Place of Legal Residence

<u>County</u>	<u>Total</u>
Alameda	2
Fresno	6
Imperial	2
Inyo	1
Kern	3
Los Angeles	229
Madera	1
Mendocino	1
Merced	2
Napa	2
Placer	1
Orange	36
Riverside	20
Sacramento	7

<u>County</u>	<u>Total</u>
San Bernardino	23
San Diego	11
San Luis Obispo	1
San Mateo	2
Santa Barbara	4
Santa Clara	2
Sonoma	1
Tehama	1
Tulare	4
Ventura	20
Yuba	1
Other States	7
U. S. Territories	1
Foreign Countries	1

Enrollment of Married Students

	<u>Total</u>
Public Law 346	93
Public Law 16	14
State Veterans	0
	<u>107</u>

Married Non-Vets	<u>24</u>
	<u>131</u>



Number of Degrees and Certificates Granted  
(June 2, 1950--both campuses)

<u>Division &amp; Dept.</u>	<u>Bachelor of Science</u>	<u>Vocational</u>	<u>Technical</u>
Agriculture			
Agriculture Engineering	14		1
Agricultural Inspection	40		
Animal Husbandry	51	3	19
Dairy Manufacturing	6	2	1
Dairy Husbandry	16	3	2
Ornamental Horticulture	17	2	3
Poultry Husbandry	23	2	1
Crop Production, General	17	2	5
Citrus Fruit Production	23	2	4
Deciduous Fruit Production	8		3
Soil Science	4		0
Engineering			
Aeronautical	35	1	5
Air Conditioning & Refrig.	46		32
Mechanical Engineering	52		5
Electrical Engineering	27	3	11
Electronics & Radio	25	1	10
Printing	1		
Architectural Industries	13	2	7
Maintenance Engineering	1		1
Liberal Arts			
Biological Science	1	0	0
Health & Physical Education	14	0	0
Mathematics	7	0	0
Social Science	2	0	0
Total	<u>443</u>	<u>23</u>	<u>110</u>

Grand Total Graduates, June 1950 --576\*

\*Note: The total number of graduates in June, 1950, was greater than the total number of students enrolled during any school year in the first 35 years.

Faculty, Two Campuses

For the school year beginning September, 1950, only five new instructors were added to the faculty, bringing the total to 206 persons on the teaching staff at the San Luis Obispo and San Dimas campuses.

The following charts indicate the distribution of the teaching staff according to degrees as of January 1, 1951:

San Luis Obispo	
Degrees:	
Ph. D., Ed.D.	12
M.A., M.S.	73
A.B., B.S.	69
No degrees	<u>22</u>
Total	<u>176</u>

Voorhis Campus	
Degrees:	
Ph.D., Ed.D.	2
M.A., M.S.	8
A.B., B.S.	15
No degree	<u>0</u>
Total	<u>25</u>



### General Objectives

The primary function of instruction at California State Polytechnic College is to impart to students those techniques and sciences necessary to perform successfully the occupations in which they will be employed. To balance this concentration on offerings designed primarily for occupational competence, the curricula must therefore also emphasize general education subjects which help the student to understand the world in which he lives, assist him to express himself, help him to live harmoniously with other people, and to assume his appropriate citizenship and community leadership responsibilities.

### Objectives of the Agricultural Division

The college prepares men in the field of agriculture with the principal objective being to provide graduates of this division with a full and broad understanding of basic factors involved in production, management and marketing, together with the necessary skills, experience, and related subjects to make such a graduate an efficient agricultural producer.

The educational approach used at Cal Poly not only prepares men for positions in the production fields but gives thorough training in managerial skills and techniques and in the various other fields closely related to agriculture. This knowledge of all basic factors in the agriculture industry not only enables the student to reach the top in the industry but it gives him a grasp of the significance of all agricultural processes and consequent tolerant attitudes toward every problem faced by the industry.

### Objectives of the Engineering Division

Primary purpose of instruction in the engineering and industrial division is to provide instruction in the basic fundamentals in engineering with the supporting science and mathematics and the application of these fundamentals to those areas of engineering which include planning, construction, operation, manufacturing, application, sales and maintenance. Special emphasis is placed upon the application of fundamentals in solving problems which frequently arise in industry.

Every effort is made to prepare the student for the type of work an engineer usually experiences in his employment by providing conditions favorable to developing proper mental attitudes and desirable manual skills. Special emphasis is placed on factors that will help the student make that transition from a college atmosphere to his first employment in the industrial world.

### Objectives of the Liberal Arts Division

Purpose of the liberal arts division is to organize instruction in the traditional categories so as to emphasize possibilities for employment. The providing of general education for all students of the college is also a major responsibility of this division.



### Unique Educational System

During the 1950-51 school year, the college has received numerous requests from educational leaders throughout the nation for descriptive material on Cal Poly's "upside down" educational system. Some have requested answers to specific questions pertaining to the operation of this unusual sequence of courses. Others have indicated a desire to adapt the system for their own use. A number of California junior colleges have indicated a desire to set up programs paralleling the first two years of a number of Cal Poly majors for the purpose of providing a two-year occupation course for their students which can be either terminal or will enable the student to continue on in his selected field by transferring to Cal Poly. A faculty curriculum study committee, headed by the Dean of Instruction, is working on details of this program to provide this "pilot" service to California junior colleges.

Essentially, the "upside down system" is quite simple. Occupational courses in the student's chosen field begin in the first year and continue throughout the four years. As many of these occupational or job-getting courses are grouped into the first two years as is possible. In the third and fourth year the student takes, in addition to courses in his major, those subjects considered as general education. If the student leaves at the end of the second year, he has acquired a background in fundamentals and skills which make him immediately employable in any one of a number of positions in the occupational field of his choice. Because of this course pattern, a student may terminate his formal education after one, two, three, or four years, qualified to take his place in the occupational field of his choice, with partial or complete credit toward the Bachelor of Science degree.

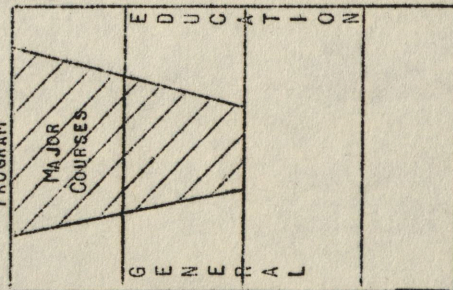


# THE CAL POLY PROGRAM OF COLLEGIATE OCCUPATIONAL TRAINING

ILLUSTRATING

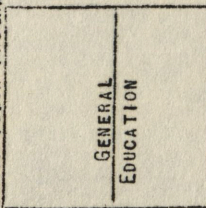
THE "UPSIDE DOWN" PHILOSOPHY OF EDUCATION

TYPICAL COLLEGIATE  
LIBERAL ARTS  
PROGRAM

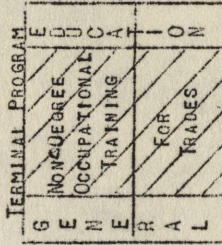


\* 50%  
DROP  
OUTS

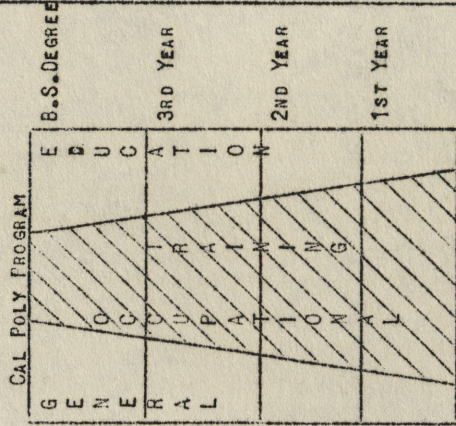
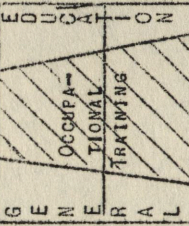
JUNIOR COLLEGE  
LOWER DIVISION PROGRAM



JUNIOR COLLEGE  
TERMINAL PROGRAM



JUNIOR COLLEGE  
OCCUPATIONAL TRANSFER PROGRAM



GRADE POINT AVERAGE

\* SOURCE:

J. PAUL LEONARD IN  
"DEVELOPING THE SECOND-  
ARY SCHOOL CURRICULUM"  
ALSO, U.S. OFFICE OF EDUCATION  
"STATISTICS OF STATE SCHOOL SYSTEMS"

THE 20% OF THE HIGH  
SCHOOL GRADUATES GOING  
ONTO SOME COLLEGE

ALL OF THOSE STUDENTS WHO GRADUATE FROM HIGH SCHOOL PROGRAMS  
ACADEMIC 80%  
VOCATIONAL 20%

EMPLOYMENT

VOC. APTITUDE TESTS

REFRESHER COURSES



## Curriculum Study

The foregoing chart is the basis for an extensive curriculum study undertaken this year by a faculty and administrative committee, under guidance of the Dean of Instruction and the President. It is referred to as the "unified curriculum study" because the fundamental purpose of the study was to work out a method for eliminating duplication of subject content in courses presently set up in some curricula for vocational, technical and degree students.

An explanation of the chart and of the relationship between Cal Poly's "upside down" system, the junior college programs, and the traditional educational pattern of the University follows:

1. At the extreme left is a block representing the typical collegiate program in which no occupational courses are given until the student is admitted to the upper division. The smaller block to the right, labeled "Junior College Lower Division program," represents a duplication of the lower division work in general education, which meets the University's requirements. That the junior colleges are doing a good job in lower division academic work is indicated by the records made at the University by their transfer students. Junior college transfers do as well in the upper division as do transfers from other four-year colleges and even the University's own lower division students. This is the program which attracts 80 per cent of the enrollment because parents, students, and academically-biased counselors fear the stigma attached to a program which does not lead to a degree--even when it is known that the majority of students in junior college intend to finish their in-school education at the end of two years. As a result, few students (only the academically weak or the rugged individualists) find their way into the terminal program. On the chart the terminal program is indicated by the center block, which shows a large shaded area of non-degree occupational training and parallel strips of general education. Even the general education courses in this program have been watered-down to take care of the students who are not gifted with verbal or abstract intelligence.
2. It is our firm belief that by creating a junior college occupational transfer program that will enable a student to continue his college training if he desires, we will have removed the stigma that now persuades students into the completely academic general education curriculum even when they would prefer specific occupational training.
3. The block captioned, "Junior College Occupational Transfer Program," would include those general education courses taken from the degree-transfer or lower division program of the junior college, and the occupational courses will follow the pattern set by Cal Poly, which in effect, will up-grade the occupational courses now given by the junior colleges. However, the terminal nature of the program will not be lost, since the occupational courses in the first two years will be descriptive rather than analytical, and will provide the student with a maximum amount of occupational skill that will make him immediately employable should he find it advantageous or necessary to leave school at the end of the first or second year.



4. In the Engineering departments there are certain science and mathematics courses which must be taken in the first two years to provide the student with the tools necessary to understand the analytical courses offered in the last two years.
5. By vocational aptitude and academic aptitude tests, we will discover whether entering students need refresher courses in mathematics, English, physics, etc. If they do, refresher work for which no credit towards the degree is granted will be provided to prepare them for the required courses, but at the same time the students will be allowed to take all first and second year occupational training courses which do not require an understanding of those subjects as prerequisites.
6. Although we will not have separate technical and vocational curricula, and therefore will not grant technical and vocational certificates for completion of a prescribed pattern, we will still have a certain percentage of students who will anticipate the termination of their institutional training by the second or third year. For these men, we will provide a non-rigid program selected with the approval of their departmental adviser. Upon completion of this program, which will include a minimum of general education, the department head will certify to his qualifications and he will be issued a certificate showing the number of units of occupational training which he has completed and indicating the kinds of work within his occupational field for which he is qualified.
7. The same procedure would be in effect for the student who anticipated completion of the four-year program, but who was forced, for reasons other than scholastic failure or poor conduct, to leave at the end of the second or third year.



## Project Operation

One of the unusual methods of carrying out Cal Poly's "learn by doing" philosophy is the college's project system. In 1927 several enterprising faculty members used their signatures as collateral for a \$2000 bank loan, so that animal husbandry students could finance the purchase of some feeder cattle which they eventually marketed for a profit. This basic idea of loaning money to students to finance projects to be operated on a commercial scale was refined and set up as a permanent teaching method when the State Bureau of Agricultural Education took over administration of the institution in 1933. The establishment of a Foundation fund at that time put the operation on a business basis and enabled the project system to be used by students in every department. The project revolving fund has grown to more than \$90,000. From this fund students may borrow at five percent interest without co-signers for investment in agricultural or industrial production projects. After paying off all costs, his interest, and the original loan, a student retains 2/3rds of the profit and returns 1/3 to the Foundation to guarantee against possible future loss by individual students.

This combination of the very practical "learn by doing" and "earn while you learn" philosophies not only enable a student to earn money while doing work directly related to his major academic interest, but also creates an added incentive for the more rapid acquisition of further skills and knowledge.

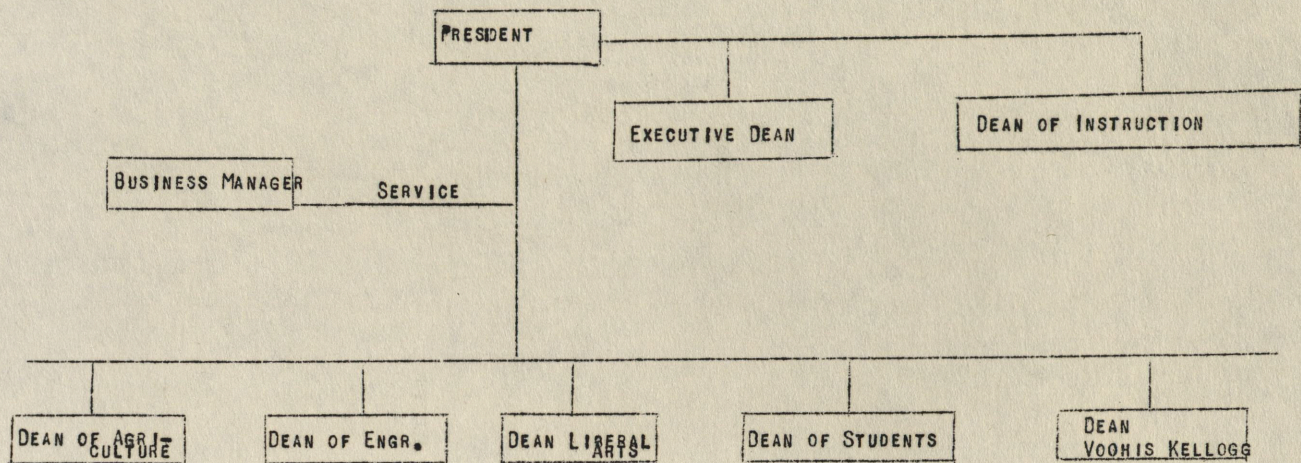
Accreditation---The State Board of Education re-approved Cal Poly as a teacher training institution for another five-year period ending June 30, 1956. The re-accreditation applied to the following credentials: General Secondary, Special Secondary in Physical Education, Vocational Agriculture, and Limited Agriculture. The General Secondary credential applies to majors in Agriculture, Health and Physical Education, Life Science and General Science, Mathematics, Physical Science and General Science, and Social Science.

The college, although fully accredited as a four-year, degree-granting college by the Northwest Association of Secondary and Higher Schools, has applied for accreditation from the Western College Association. The Northwest Association has been, until recently, the only certified regional accrediting agency in this area. The Western College Association, primarily an organization of liberal arts colleges, has within the year broadened its functions to include that of accreditation. All member institutions of the association received automatic blanket accreditation at the time the association established its accreditation function. Cal Poly, not being primarily a liberal arts college, did not belong to the association and therefore did not receive automatic accreditation. A multi-paged accreditation application, prepared by the Dean of Instruction's office, has been submitted and a visitation committee of the association made a two-day investigation February 1, 2.

## Administrative Reorganization

Cal Poly was the first of the state colleges to put into effect the new organizational plan recommended for the state colleges by the State Department of Education and the State Division of Finance. A number of shifts in administrative personnel were made necessary by the new plan. The new positions of executive dean, dean of students, dean of engineering, dean of agriculture, and dean of liberal arts have all been filled, either by new personnel or by promotions from within. A simplified chart of the present





### Student Services

Under the new administrative organization the Dean of Students has administrative responsibility for the following offices: admissions, registrar, placement, guidance, testing, student activities, and health.

### Counseling Center

The college operates a student counseling center which is responsible for the administration of all the entrance placement tests and for the individual counseling of students who either request counseling or who are referred to the counseling center by their departmental advisors. A folder is maintained for each student which contains the results of the entrance tests, counseling, and other pertinent information.

The counseling center is manned by one to three counselors, a psychometrist, and a receptionist. Besides aiding the students in the selection of vocational objectives and solutions of educational problems, students with social and emotional adjustment problems are assisted in the solution of their problems or are referred to psychiatrists for further counseling. Limited research in the field of student progress is carried on. An occupational library which follows the D.O.T. classification is maintained. IBM test scoring equipment is located at the counseling center. A separate testing center is adjacent to the counseling center.

### Health Center

The following personnel and facilities of the College Health Center are available for all students: 20-bed campus hospital with living quarters for two nurses who are on regular duty; four contract doctors on call; treatment room and small dispensary.

### Placement Service

The college Placement Office assists students in finding part-time work



while in college and aids former students and graduates in obtaining permanent employment at the occupational levels for which they are prepared. A former student may call upon the Placement Office at any time in the future for placement help.

### Student Activities

Cal Poly believes in a carefully supervised integration of campus and classroom activities to develop personality, leadership, and teamwork. Extra-curricular activities provide diversion from the classroom and laboratory. More important, these activities develop qualities necessary to the freedom-loving citizen. Students are encouraged to participate in student government, publications, music, social groups, professional societies, athletics. It fields competitive varsity and freshmen teams in all major sports as a member of the California Collegiate Association. In addition, it provides facilities and coaching staff for competitive teams in boxing, wrestling, gymnastics, tennis, cross-country, swimming, and other minor sports.

### Library

Library operations during this year have concentrated on improvement in efficiency. Budget limitations have made it impossible to add any new services. Approximately 5,000 volumes have been added to the book collection, about 525 magazines are received by the library and great numbers of Government Documents are obtained either through Government distribution or through purchase. The index to Government Document in this library has been greatly expanded and is becoming an important tool to the reference worker in the library. The catalog department has been shorthanded throughout the year because of the great scarcity of qualified catalogers in the library professions.



## Departmental Reports

Under the sub-headings of the three respective instructional divisions--agriculture, engineering, and liberal arts---are listed the summarized reports of major developments in most of the departments.

### AGRICULTURE

Agricultural Engineering --- In the fall quarter, 1950, 1035 students were enrolled in classes offered by the department. Of this number 167 were Agricultural Engineering majors.

Besides training students majoring in the fields of Agricultural Engineering and Mechanics, the department gives training in the various mechanical and engineering phases of agriculture to all other majors in the Agriculture Division.

Nine new tractors and a variety of the latest and most modern farm machines, with a total value of \$50,000, were acquired for instructional use. This equipment is leased from manufacturers at an annual cost of 10% of its value. Whenever new models or improvements are made, the manufacturer calls in the old machine and puts a new one in its place. Not only does this arrangement make it possible for the students to have the very latest in modern equipment with which to get their practical training, but it also materially reduces the heavy expense of maintaining old, obsolete and badly worn equipment.

Students in Surveying, Erosion Control, and Irrigation classes using the new equipment designed and constructed a number of diversion terraces, contour ditches and a new irrigation reservoir. Besides reducing soil erosion losses, these structures will retain for irrigation purposes an additional 6,250,000 gallons of water previously lost through run-off.

Tractor and farm machinery classes graded the sites for the new beef feeding unit, slaughter house, hay storage shed, horse barn, and corporation yard. They also built a new road to the feed mill and prepared the soil and seeded or planted 400 acres of crop land on the college farm.

Classes in Rural Electrification installed a generating unit and wired the dwelling house and outbuildings on one of the outlying ranches recently purchased by the college. Farm Carpentry classes rebuilt one of the barns and is now building a new horse barn from the foundation up.

The ability to produce is an important factor in placement. To date every graduate of the department has been employed in a good job and there is a continual waiting list of job openings for more men so trained.

Agricultural Inspection---Training in this field continues to become more popular. Total enrollment (San Dimas and San Luis Obispo) for fall quarter 1950 was 180 students of which 145 were enrolled at San Dimas and 35 seniors enrolled at San Luis Obispo.

The facilities and curricula provide an effective means of qualifying graduates for State, County and private fields. Field trips and practical programs of weed and rodent control are of educational value as well as of service to the college farm.



Placement in the county departments of agriculture continue to be good. Of the June, 1950 graduates 22 men have been placed in 18 different counties.

Animal Husbandry---The Animal Husbandry Department served 523 majors, 100 non-majors and assisted in the training of 36 student teachers, during 1950-51.

Increased enrollment necessitated an expansion in facilities. Properties recently acquired are: Serrano property, 500 acres of grazing land and 80 acres farming land; and Peterson property - 600 acres grazing land. These properties are to furnish pasture and feed for expanded beef and sheep operations for student project work and range management studies.

The building expansion includes a beef feeding unit, and hay storage unit. Feed milling equipment was added to increase opportunity for students to carry on practical commercial cattle, sheep and hog feeding projects.

Plans have been completed and a site is ready for a meats laboratory, and killing plant to further meat animal study.

\$55,000 worth of beef cattle were sold by student projects, and \$35,000 worth of hogs and \$12,000 worth of sheep were fed out and marketed by students. Students received approximately \$15,000 as their share of profits from animal husbandry projects. The Foundation retained \$7,500 as its participating share. At livestock shows students competed favorably with breeders for premiums.

Livestock judging teams competed at Pacific International at Portland, Grand National at San Francisco, Chicago International at Chicago, and National Western Contest at Denver, with other agriculture college teams from all over the United States.

The department conducted a three day judging conference in cooperation with Western Fairs Association and the University of California.

Crops Department---The Crops Department is composed of three subdepartments. Field Crops, Deciduous Fruits and Truck Crops production. Courses offered in all three departments have been well attended both in the major field and general courses offered for majors in other departments. The General Fruits course, for example, was offered in summer, fall and winter quarters with a total enrollment of 92 students.

Additional land for field crop programs and projects has become available with the purchase of the Cheda ranch property at the beginning of the spring quarter.

Orchards and vineyards are maintained with more than 150 fruit varieties. The product is grown, harvested and marketed entirely by students. During the calendar year 1950, a total return of \$4005.00 was made to the state for the products sold from the orchards. Oranges were the largest single item sold, totaling \$777.27.

The Crops Department maintains a store on the campus for the sale of the products of orchard, vineyard, truck and field crops. This is entirely handled by students and caters principally to student families, faculty and other employees. The store is used as laboratory by advanced courses in fruit production and truck crops. Students are required to assist in pre-



paring the stock and helping in sales, thus following through to the consumer the products which they have produced in orchard and field.

Crop teaching aids were sold to high school vocational agriculture departments at the cost of the student labor preparing them.

All graduates of the Department are engaged in agricultural work except those who have been called into the service. Some interesting new types of employment have developed recently.

The California Agricultural Teachers and the California Polytechnic College have been represented on the California Seed Council by the Department head for the last several years. This year he was elected vice-president of the Council.

Wayne Livingston, a senior graduating this summer in Field Crops, has been chosen with four other young people of the state, in an exchange with agricultural students from foreign countries, carried on under the direction of the California Farm Bureau Federation. Wayne leaves in June for Turkey where he will live with an agricultural family until early next winter.

Dairy Department---There has been a continued improvement of department facilities during the year. New equipment has been installed in the dairy laboratory, bringing it up to a minimum standard needed to train students for commercial plants.

The 400 acre Cheda property, adjoining the college was purchased and being used as a dairy project unit and for crops. It provides an excellent facility for the operation of student dairy cattle projects, including a splendid grade A milking barn, large shelter barn, and considerable pasture. About thirty students operate dairy projects with a total of around 75 head of high-quality cattle. This project method of teaching is very highly regarded by everyone acquainted with the Polytechnic curricula and the expanded facilities will be very helpful.

The college Holstein herd again averaged over 600 pounds of butterfat per cow for the fourth year in succession. The average cow in California produces less than half this amount. Students fitted and sold three yearling heifers in the California heifer sale, which averaged \$994 per heifer. One of these heifers sold for \$1500 which ties for highest-priced heifer of the sale.

The enrollment in the dairy department has continued to decline during the year although quite slowly since the winter quarter. Requests for trained dairy farm and creamery workers continue to be received by the college. There are not nearly enough graduates available to meet these needs of the industry.

Students showed their own cattle and some of the college breeding herd at three county fairs and the Grand National at San Francisco, winning many premiums, much valuable experience, and considerable money to help meet college expenses.

Dairy Club members purchased, fitted and sold a heifer in the state Holstein sale to earn funds to help finance trips of judging teams to the Pacific International at Portland, Ore., and the National Intercollegiate dairy cattle judging contest at Waterloo, Iowa. The dairy cattle team placed second and the dairy products team sixth at Portland. This is the first



time that the college has been represented by a dairy products team in collegiate competition. The dairy cattle judging team placed fifth at Waterloo with 28 colleges from all over the U.S. and Canada, competing and a junior team placed 4th at Portland. This gives Polytechnic the highest point rating to date of any college competing in this national contest.

Poultry Husbandry---The Poultry Husbandry department served 100 poultry majors and 150 other agricultural majors during 1950-51.

Of the 25 students who graduated in Poultry in June, 1950, all but five are working in the poultry industry or closely allied fields. Three of the five not in the poultry field have entered the armed services. Eight of the graduates are teaching agriculture or are presently enrolled in graduate work.

The students again have an entry in the California Egg Laying Contest. Their pen placed first for the month of February, 1951.

During the year, 90 student projects were completed in egg production, replacement brooding, meat bird production and turkey production. Each of the poultry majors have completed at least one commercially productive project.

A total of more than 46,000 dozen eggs were produced by the poultry department in addition to 6400 lbs. of turkey meat and about 5000 fryers. A total of 80,000 baby chicks and hatching eggs were produced and sold to Future Farmers, students and alumni during the year.

Soil Science--- Substantial progress was made during the year 1950 in the training of students in Soil Science, development of courses, improvement of teaching facilities, and in the placement of graduates in soils or related fields.

Enrollment of students in all courses during the year totaled 905. This figure includes students meeting graduation requirements in various departments of the Agricultural Division and a substantial number electing soils courses to round out their college training.

Additional equipment was secured for the soils laboratory to provide opportunities for students to learn modern skills in this field. Demonstrational plot establishment was expanded to provide students with opportunities of studying soil management practices under field conditions. The addition of two ranches to the college farm increased opportunities of students to study range condition and ranch type operations.

At the close of the 1950 year 45 students were enrolled as majors in the Soil Science curriculum which was first offered in the fall of 1949.

Placement of the department's four graduates was successful. Three are making satisfactory records in their chosen field. The other graduate has completed masters degree work in Soil Science at Oregon State College. Graduates in other departments of the Agricultural Division have also been helped in securing jobs with federal agencies.



Veterinary Science---The veterinary science department has continued to act as a service department in the agricultural division. The course of instruction serves as a link between fundamental biological science and practical animal husbandry.

The veterinary science department is sorely in need of improved facilities.

The veterinary hospital provides an 8' x 11' office for two men. Storage space for pharmaceuticals used in demonstrations and routine veterinary service to college herds and flocks is very inadequate. It has been recommended that the present veterinary hospital be torn down and a new unit built when the present site is cleared for the proposed science building. A floor plan has been prepared for this new veterinary hospital.

Both members of the veterinary science department devote considerable time to the maintenance of the health of the college herds and flocks. It is especially important that the college livestock be kept free of animal diseases that are transmissible to humans, and would prove a hazard to students working with them. The herds are maintained free from tuberculosis, brucellosis, encephalomyelitis and similiar diseases which are dangerous to human health. Special programs are being followed for the control of mastitis, contagious ecthyma, etc.

Ornamental Horticulture---During 1950-51 the Ornamental Horticulture Department maintained a student average of 94. At the highest peak there were 112 students in the department and at the lowest there were 88. The department's enrollment has consistently increased each year. In addition, 58 students from other departments received instruction in the department.

A new glass house with 1,000 square feet was added for growing tropical plants. More than 5,000 people visited the department during the year.

Total gross sales of \$1,413.88 from 35 student projects netted a profit of \$1,416.17 for the students and the project fund. Approximately 2,300 state-owned plants in gallon cans and 122 flats of flowering plants were planted on the campus.

Students of the department designed and have partially planted the large patio on the south side of the new library. All of the plantings of shrubbery and flowering plants around the new library have been done with student labor. In addition, one-half of the lawn area on the south side of the library building was put in by students.

The department furnished decorations free of charge to 42 functions on the campus this past year. These included banquets, dances, and convention meetings.

Gifts were received for the department in the form of many specimen plants from various nurseries in California, from San Francisco on the north to San Diego on the south.



ENGINEERINGAeronautical Engineering

Three new courses were offered for the first time during the school year 1950-1951. These courses are as follows:

Aircraft Detail Design  
Airplane Detail Design  
Aeronautical Laboratory

The engineering laboratories have been furnished with additional tools and instruments to enable the student to get more actual experience on commercial type of equipment as well as to apply his classroom instruction to practical situations.

Work has continued on converting war surplus equipment to meet the special needs of the department.

This spring the Cal Poly Student Branch of the Institute of Aeronautical Services is conducting a student forum which will be attended by outstanding men from the aviation industry as well as student representatives from several of the west coast institutions offering courses in aeronautical engineering.

The department has completed, subject to approval, unified curriculums in the Aeronautical Engineering and the Aircraft Maintenance and Operations Engineering courses.

Air Conditioning and Refrigeration Engineering

Major improvements in the Air Conditioning and Refrigeration Engineering Department have been in the form of rearrangement in the laboratory and the installation of new test equipment. A complete air conditioning system, which includes both heating and cooling, has been installed in the test and measurements laboratory for test purposes.

Three complete heating systems have been installed demonstrating hot air heating, hot water heating and steam heating systems. These have been built as laboratory projects and installed in the laboratory for test purposes. There has been some progress but work is not completed on converting war surplus equipment into laboratory test equipment.

Through contacts with the professional societies, arrangements have been made for the acceptance of AC department students as student members of the American Society of Refrigeration Engineers.

Architectural Engineering

Through the efforts of the head of the Architectural Department and his contacts with the American Institute of Architects, the department has received considerable professional recognition in the State of California. The department head has been asked to serve on several state wide committees dealing with education, and through his contacts, there has been established on the campus a student chapter of the American Institute of Architects.

Several students entered the Chicago Tribune national architectural contest and, again this year, two students received prizes of \$100.00 each for work submitted to this contest. This contest was opened to all architects in the United States.



Arrangements have been made for the Executive officers of the state organization of the American Institute of Architects to meet on the campus this spring.

Several requests have been received from architects asking for June grads. It is anticipated that there will be more opportunities offered the 25 June grads than they can fill.

### Electrical Engineering

The Electrical Engineering Department graduated 44 men in June 1950, 28 with Bachelor of Science in E. E. and 14 with technical certificates. About 1/3 of the graduates were employed by electric power companies and telephone companies. The remainder (except 3) were employed in diversified electrical industries including three degree men in the General Electric Test program. One hundred additional men could have been placed had they been available.

The course content and offering is continually being reviewed and modifications are made which will aid the graduate in acquiring the fundamentals of engineering, being able to adjust quickly to industry and most important, become a well adjusted citizen of the U.S.

Over half of the graduates were employed before graduation. Two started their own business. The department brings six industrial men to the campus each year to speak to engineering students.

### Electronic and Radio Engineering

Enrollment in Electronic and Radio Engineering has remained steady throughout the year. Despite normal dropouts and loss of students to the Armed Services, the spring quarter enrollment has shown a small increase. The department has an enrollment of 175.

There are nearly seventy alumni of this 4-year-old department, practically all of whom are actively engaged in their chosen vocation. The majority are employed by California industry. There will be 57 graduates in June 1951 (45 engineering and 12 technical). As of March 1st, at least 25% of the graduates have been placed.

The long range planned development of laboratory and shop facilities is nearing completion as far as major items are concerned. The fabrication shop has just been completed. The department now has the necessary shop facilities to simulate every major step in the manufacturing process. These facilities make possible a project system in which the student has the opportunity to carry out a project from paper plans to finished product meeting commercial standards of performance and appearance.

This year all freshman in the department have taken a new series of integrated shop courses, machine shop, welding, and sheet metal fabrication. With freshman lecture and laboratory courses in the fundamentals of radio and electronics, the student develops many employable skills during his first year.

### Maintenance Engineering

A minimum shifting in curriculum in the department has made it possible to train men for the more inclusive and newly recognized field of plant engineering. The department conducted a questionnaire survey of some 500



plant and maintenance engineers in the United States and Great Britain in order to evaluate placement opportunities and to get the opinion of men employed in the field as to curriculum content. Results of the survey indicated an overwhelming acceptance of such a program by plant engineers. Further interest in this phase of the training activities of the department was indicated by an invitation extended to the head of the department to present a paper at the annual Plant Maintenance Conference in Cleveland, Ohio.

As in the past, the department has materially reduced campus maintenance costs by having students do their supervised "learn by doing" projects on needed campus jobs.

### Mechanical Engineering

The M.E. Dept. has had a decrease in enrollment from 300 to about 250. Approx. 25% of these are in the Technical and Vocational programs. About 75 new students entered M.E. fall quarter, including many transfers from other colleges. About 50 men will graduate before the start of spring quarter 1952.

Expansion of elective course offerings in Metallurgy, Freehand Sketching, Advanced Internal Combustion Engines, Instruments and Controls and Fundamentals of Petroleum Engineering allow students to extend their educational horizons and thereby increase their employment value. The most notable of these courses is the Petroleum course which has been developed with close cooperation with men in the petroleum industry. The course has been a continuous sequence for the full year and has included many field trips to all phases of petroleum operations.

Improvements in the senior Machine Design course bring it closer to industrial practice. Students follow standard drafting practices as dictated by a Drafting Room Manual and in other respects the class is organized similar to the engineering department of an industrial company.

Additional facilities include a Fuels Testing Engine which will also be used to teach the interrelation between many variables in internal combustion engine performance. The Materials Testing Lab. now contains an electric strain indicator, equipment for microscopic examination of metals and improved shop facilities for making test specimens. In the Hydraulics Laboratory, equipment for study of oil flow in pipes is in regular operation for class work and a piping system for study of gas flow and metering is to be completed this year. To provide the additional electric power needed for operation, a small diesel-electric power plant has been installed.

### Printing Department

The Printing department attained its largest enrollment in 1950-51 and has improved its curricula so that it can better prepare students for future employment in the printing and publishing industry.

It has been found that the four-year curriculum leading to a Bachelor of Science degree with a major in printing has been well received by employers in the publishing industry. So far all graduates of the printing department of California State Polytechnic College have been employed by newspapers, printing plants and several of the large manufacturers of printing equipment. Those students who, due to personal or financial reasons, have been forced to drop out of the course at the end of the



second or third year, have also been placed on jobs of lesser responsibility with the printing industry.

The printing department was host to the Executive Board of the California Newspaper Publishers association during the year. A resolution commending the department was unanimously passed by the California Newspaper Publishers at their annual convention in Sacramento.

Plans for the expansion of the floor-space of the department have been approved. Two new type-setting machines and much modern type has been installed during the year. The Mergenthaler and Intertype Corporations each have expressed their approval of the type of training and each has donated a line-casting machine. Addition of a new instructor to handle cost and estimating, management and accounting courses pertaining to the administrative field in the printing industry has greatly enhanced the value of this department.

It is felt that the present peak enrollment of 50 majors will be maintained.

#### Machine Shop

Approximately 490 students were enrolled in machine shop courses in 1950-51. Developments were: the inauguration of a new survey course in machine shop for students from Electronics and Radio; a course in general machine shop practice in which all campus and departmental work, both repair and construction, was done without cost or interference with instruction in beginning courses; a special course in tool making for advanced printing students; the new fifteen-unit senior option course in Manufacturing Processes made further advancement with outstanding work being done in student-made tools and dies; advancement was made in the objective grading of student laboratory work by use of shop made precision measuring instruments; two outstanding shop tools were designed and constructed by students as thesis projects, one of which would have cost over three thousand dollars if built in a commercial tool and die shop; a new vertical milling machine and an optical comparator were added to the shop equipment.

#### Welding Department

During 1950 the welding department gave instruction to approximately 500 students per quarter from the five engineering departments of the college.

In addition there were: (1) Installation of a new Heliarc station for welding of aluminum, stainless steel, and other hard-to-weld metals. (2) Installation of a pantograph flame cutting machine for mass-production flame cutting. (3) A one-unit summer welding conference was held for approximately 100 teachers in the metal-working fields throughout the state.



## LIBERAL ARTS

Teacher Education---The California State Polytechnic College was approved to give agricultural credentials in 1946 and general secondary credentials in 1948. During the year 1950, eight general secondary credentials, 13 special secondary credentials in physical education, one special credential in driver education and driver training, and 36 credentials in agriculture were issued. This is a 100 per cent increase over last year. Fortunately, most of the general secondary credentials are in areas where there is a teacher shortage. This is also the case with the agricultural credentials.

The number of trainees in agricultural education, including students in all levels from first year in college to graduate year, again increased in 1950 over 1949, by approximately 20% (140 to 170).

In the fall of 1950, twenty advanced students completed their directed teaching as compared to fourteen for the same period in 1949.

Between July 1, 1946 and December 31, 1950, the college trained a total of 89 teachers in agriculture - 77 vocational agriculture teachers, and 12 men qualified for the limited credential in agriculture. Of this total number 84 are currently teaching agriculture and 82 of them in California.

The students are also applying in increasing numbers to enter the master's degree program. Although no degrees have been issued to date, it appears that between seven and 10 students will complete the requirements by the end of the summer quarter.

Three new instructors were added to the Education department.

Agricultural Journalism--- This new major approved by the State Department of Education opened for the first time in September, 1950, with an enrollment of fourteen majors. Additional majors make the current total sixteen. This does not include several men now at San Dimas who report their intentions of transferring to the San Luis Obispo campus next year and majoring in agricultural journalism.

An almost continuous stream of placement opportunities demonstrated more than ever that California communications media are in need of the product we are developing. Among job opportunities were at least twelve from trade or consumer magazines in the West Coast agricultural and allied fields. At least twenty more requests for men have been received from newspapers, advertising departments, organizations in search of farm-experienced public relations men, and from fair associations seeking promotion and publicity men. None of these were solicited. Attempts were made to hire-away three majors before they could complete their programs.

As a service medium to the remainder of the school, the journalism department has worked closely with the printing department in giving training to printing majors & the agricultural division in providing training in advertising, publicity, public relations and photography.

Emphasis has been placed on actual for-publication production. In contrast to most schools, Cal Poly's news bureau has been operated essentially by students. In the magazine field, 35 full-scale illustrated feature articles have been produced by students for professional consumer and trade publications and others are already scheduled for publication later this year.



Numerous lesser articles and items have also been placed. The journalism department also has taken over editing and production of the Cal Poly alumni magazine.

Biological Sciences---Forty-one majors in Biological Sciences either started in the fall quarter or joined the department during the year. Several of these will graduate this year. Their fields are teaching, park service, pharmaceutical laboratory work, and fish and game.

One new staff member was added, bringing the total to six. Due to the large number of non-majors served, the Biological Sciences department had to call on five qualified faculty members from other departments to teach some of the biology courses.

Two new courses, Human Anatomy (BSc 237) and Wildlife Management (BSC 433) were offered for the first time during the year.

The Western Society of Naturalists accepted the invitation of the Biological Sciences Department to hold its annual winter meetings on the San Luis Obispo campus. About one hundred and fifty members attended representing colleges and universities from Washington to San Diego.

Physical Education---Program expansions have included courses in: Community Recreation, Elementary Physical Activities, Techniques of Sports Officiating, School Health Administration, and Athletic Training & Massage. These have rounded out the training for teaching majors.

Additional facilities completed this year include four hard-surfaced tennis courts, and a hard-surfaced play area for outdoor basketball and volleyball.

1951 will mark the fourth year the California Association for Health and Physical Education has selected the campus for its annual Physical Education workshop. The second annual P.E. workshop for women also will be held here in the summer of 1951.

Last year all physical education majors who were graduated found positions, most of which were in the teaching field of either elementary or secondary level. Reports from school principals have been complimentary concerning the quality of the work which graduates of this department are doing.

Social Science---During the 1950-51 year, the Social Science Department continued to serve the Engineering and Agricultural Divisions, as well as the various departments in the Liberal Arts Division. The department also met the demands of its own majors, numbering some thirty-six students. The Social Science Department is, like all other departments, now engaged in a curriculum revision program. It is expected that a number of revision of courses will result, and some two or three new courses will be added.

The teacher training program of the department is now in its third year.



English Department---No graduation major is offered by this department, but it serves the entire college.

The academic year of 1950-51 was marked by a change in chairmanship and continued progress toward revision of the department curriculum.

William G. Leary and James S. Smith had their book, Think Before You Write, published by Harcourt Brace. The textbook was introduced in beginning classes in the spring quarter and its use will be extended to other classes in the fall.

The department "job analysis" study of language use contributed to the development of a revised curriculum which became a part of the report of the Planning and Development Committee. A more extensive investigation of language use among students and alumni is being planned. The results of this long-term study will be used to verify and revise course offerings.

Music Department---No graduation majors are offered by this department, but during the first two quarters of the 1950-51 school year nearly 200 students had elected to take courses in music appreciation, harmony, glee club, orchestra, band, etc. The department provides a band, dance orchestra, glee club and numerous specialty groups. During the last week in March they completed a week-long good-will music tour of 20 San Joaquin Valley high schools.



### Voorhis-Kellogg Campus

Since November 1, 1949, when the W. K. Kellogg Foundation of Battle Creek, Michigan granted to the State of California for the use and benefit of the California State Polytechnic College, the world-famous 800 acre Kellogg Arabian Horse Ranch, the college has used these facilities for educational purposes. Students from the nearby Voorhis Unit at San Dimas spend considerable field laboratory time at the Kellogg campus in such courses as Field Crops, Cereal Crops, Irrigated Pastures, Crop Farm Operation, Vegetable Crop Production, Feeds and Feeding, Farm Surveying, Soil Management, Introduction to Animal Husbandry and Elements of Dairying. Practical farm experience, long considered an essential element in the Cal Poly type of education, is gained on a much broader scale than previously possible. The students prepare the ground, plant the seed, fertilize, irrigate, harvest, and perform all of the cultural practices in connection with the raising of approximately 150 acres of field crops and 25 acres of vegetable crops.

The Park Design and Maintenance, Estate Design, Estate Maintenance, Tree Surgery, Basic Horticulture and Landscape Contracting students of the Ornamental Horticulture Department also utilize the extensive grounds and plantings made available on the Kellogg Campus. The native and exotic plants that were established in specialized growing areas on the property are studied by these and other students.

To the eleven acres of oranges, three acres of lemons and seven acres of avocados previously operated by Citrus Fruit Production majors on the Voorhis campus has been added a five acre block of grapefruit, forty acres of oranges and ten acres of avocados. This additional acreage affords a splendid opportunity for students to study and manage commercial size plantings. Cultivation, irrigation, pest control and all cultural practices are handled by students from the Voorhis campus.

Agricultural Inspection students make frequent trips to the Kellogg campus to supplement their study of weed and rodent control, diseases and pest control, plant quarantine and apiculture.

Students in Soils and Agriculture Mechanics classes also utilize the Kellogg campus for many field demonstrations and problems.



Voorhis-Kellogg Campus Expansion Plans

Money has been appropriated by the State Legislature for the development of a long-term master plan for the educational and building program of the two southern units of the college. Complete educational objectives for a student body of 3600 have been presented to the State Department of Education. These plans call for additional offerings in Agriculture as well as the establishment of new divisions of Industrial Occupations, Business Education and Home Economics. The contract for development of a master plot plan has been let by the State Division of Architecture. It is contemplated that this report will be available in the near future. With considerably more than one half of the State's high school enrollment centered in the six southern counties it is imperative that this expansion program be carried out with the least amount of delay.

The Master Building Program for San Luis Obispo Campus

The State Department of Education, recognizing the fact that by law the college is obligated to provide instruction to women as well as men, has agreed that the total future enrollment of the San Luis Obispo campus should be expanded to a student population of 3600. The future enrollment growth of the college, based upon a projection curve which levels off at 3600 individuals by 1965, reaches a figure of 3400 individuals by 1953-54. This latter figure, also approved by the State Department of Education, is the basis for the colleges' proposed building program.

Construction of five student resident buildings, totalling \$1,232,000, is scheduled to start on the San Luis Obispo campus June 10, 1951. The buildings are urgently needed to provide quarters for students being forced out of housing facilities at Camp San Luis Obispo by the federal reactivation of the Camp.

Out for bid at the present time are plans and specifications on the following: Slaughter House and Meats laboratory, Beef Feeding Unit and Hay Storage, and Concentrate Feed Storage building. Under construction is the new Horse and Beef Pavilion. All of these structures plus the site clearance project for relocating the poultry, dairy and horticulture units outside the perimeter area on the master plot plan have been financed from the college's share of the Fair and Exposition fund.

Being planned but not yet financed are: the Science building, Agricultural Engineering and Mechanics building, Agricultural classroom. Provision for financing the Central Heat and Power building is included in the 1951-52 construction budget.

Mobilization

The college has provided, for all campuses, complete reports covering facilities which could be made available for military programs in the event of all-out mobilization. Copies of these reports have been sent on request to the Federal Security Agency, Office of Education, the United States Navy, etc.



The college is very anxious to make the strongest possible contribution in the event of all-out mobilization and in so doing, the administration is interested in the broadest use of the college's facilities and the use of as many of its specially trained faculty members as is feasible. The college, with housing and messing facilities, might readily be of special assistance if such accommodations are needed.

During World War II a Naval Flight Preparatory School and a Naval Academic Refresher Unit were both conducted on this campus. From January, 1943, to November, 1944, more than 3,600 naval aviation cadets were trained here. Another 1,000 trainees received instruction in the NARU program operated from July, 1944, to February, 1946.



