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

**JANUARY, 1941**



## I N D E X

	<u>Page</u>
BUILDING PROGRAM--COMPLETED AND AUTHORIZED -----	1
DEGREE CURRICULA -----	4
ENROLLMENT -----	6
GIFTS -----	9
NATIONAL DEFENSE PROGRAM -----	9
NEW COURSES AND CURRICULA -----	11
PLACEMENT -----	12
PROJECTS AND THE PROJECT FUND -----	16
SCHOLARSHIPS -----	18
STUDENT LABOR -----	19
THOROUGHBRED HORSE BREEDING PROGRAM -----	22
ULTIMATE AND IMMEDIATE NEEDS -----	25
CONCLUSION -----	33



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SCHOOL

F O R E W O R D

The California Polytechnic School has established the policy of making a complete and comprehensive summary of its year's activities and accomplishments, together with a survey of immediate and ultimate building and property needs, for the information of members of the State Board of Education at their regular meeting in January of each year.

The current report will continue this policy, with a report slightly condensed in comparison to those of previous years. Some of the formative steps of the last eight years requiring explanation to the board, in the annual reports, have now been completed. In addition, the faculty has been given an extremely heavy burden of cooperation with the National Defense Program, on top of a capacity schedule of regular teaching. The shops and laboratories are operating almost 24 hours each day, even through customary vacation periods. Large increases in the regular student enrollment has added to the load.

As a result, some of the activities have been summarized in more brief form, while considerable space has been given to a description of those activities which relate most directly to the National Defense Program, and the needs of this rapidly growing state technical college.

\* \* \*



## BUILDING PROGRAM--COMPLETED AND AUTHORIZED

Five important units in the college building program were completed during the calendar year ending December 31, 1940.

In connection with the building program it should be noted that the structures which had formed the campus administrative center were built in 1901-02, or in the immediately succeeding years. Later structures erected were largely of wood frame construction, and with the exception of an excellent gymnasium and some dormitories, permanent buildings were not again placed on the building schedule until the last four or five years.

As a result, the campus was very seriously in need of a large number of new structures all at once, as original buildings were virtually declared unfit for safe occupancy, and as student enrollment shot up to the extent of almost doubling each year. When additional funds became available for building, first attention was given to the needs for student laboratory instruction and project work - the keynote of the vocational training program.

The five building units completed during the calendar year of 1940 were all in this category. All were constructed from California Polytechnic budgeted funds, with the exception of the National Youth Administration structures.

Air Conditioning Building. This unit was built specifically for class and laboratory work in air-conditioning industries. It is constructed of reinforced concrete, with steel sash, concrete floors, metal plate walks covering the channels for all utilities, and containing modern air-conditioning equipment which students designed, installed and now operate as an integral part of their training. The building was dedicated in April, 1940

Since there is considerable sheet metal instruction required of the



air-conditioning students, one room is set aside in this building for sheet metal skills training. With the organization of National Defense classes in aircraft sheet metal work, this room was utilized by these classes as well so that part of the laboratory is being used from four in the morning until ten-thirty at night.

Poultry Sales Building. This structure combines a service unit for the sale of student-produced poultry products, with an egg-handling laboratory in which the students clean and handle the eggs and pack them for wholesale shipment. This gives the boys training in retailing of farm merchandise, as well as technical operations in handling poultry products.

Sheep Unit. Although California Polytechnic has long been noted for its sound instruction in sheep and wool production, until 1940 no permanent home was provided for the foundation flock or the student-owned projects. This unit was dedicated in April, 1940. It consists of several sheds and corrals suitable for the shelter of project lambs, as well as a barn for lambing, scales for weighing market lambs and growing breeding sheep, and the storage of chopped, baled or loose hay. This unit is one of the most complete of its kind on the coast.

Thoroughbred Horse Unit. The need for this unit is discussed more extensively near the end of the report. The unit consists of stalls and exercise yards for six mares with their foals, and space for two stallions. The unit was dedicated December 8, 1940, before a considerable group of interested thoroughbred horse breeders and others.

National Youth Administration Buildings. New buildings now occupied by the National Youth Administration resident project students were erected by funds of that agency, the California Polytechnic School supplying the land and providing the classroom and laboratory space for the instruction of the students. Their program is discussed more completely



under the heading of "National Defense."

The unit erected on the California Polytechnic campus was declared to be the first resident program of its kind in the nation under the National Defense plan. The buildings provide dormitory and dining hall accommodations for approximately 120 students. The dormitory is constructed in long, narrow wings, providing a maximum amount of sunlight and fresh air for those living in the unit. Additional regular students also receive NYA assistance.

#### -Buildings for 1941-

Only two buildings are thus far authorized specifically for the building program in 1941. These are:

Administration Building. As previously indicated, several buildings on the campus erected for administration or general student use, were about 40 years old and had to be ordered abandoned. Two of these original frame-stucco structures are being razed to make way for a new classroom, administration and student activity building. Because of the widespread location of the agricultural and industrial project and laboratory units, extending over the nearly four square miles of campus and farm, great need has been felt for a centralizing agency, both for faculty and students. The new administration building, about 240 by 70 feet, will provide space for administration, business office and faculty offices, a number of vital classrooms, the student store, print shop, student body offices and other functions. The contract is expected to be let in January. The building will be the most extensive on the campus.

National Youth Administration - Second Unit. Preliminary establishment of the resident National Youth Administration Program was so successful that a second unit doubling the capacity, has already been started and will be completed during 1941. The second unit will also include sleeping and dining accommodations, the latter suitable for the entire



unit of about 240 students. The cafeteria erected for the first unit will be turned to other uses.

#### DEGREE CURRICULA

California Polytechnic was first established in 1901 as a state vocational school, no level of instruction being specified. The high school level was adopted by the first administration at the opening of school in 1903 as meeting the needs of the greatest number of persons at that time. As years passed, the level of vocational and technical instruction was increased; vocational training on a high school level became the rule rather than the exception in the district or union school, and the program at California Polytechnic advanced into the technical college level. This natural trend was confirmed and recognized by the State Board of Education in 1940, with authorization of the granting of the Bachelor of Science degree by the California Polytechnic on the completion of a subsequently-approved group of curricula in the various fields of agriculture and industry.

This move has been followed by widespread approval of educators concerned with the tremendous need for practical education, by parents and by students. First Freshman students were accepted in this new group of 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 in 1942.

Favorable comments on the action of the board have not been confined to other college administrators within California, to high school principals and student counselors, students or parents, but have come from a widespread national area. Prior to and following the national convention of the American Vocational Association in San Francisco in December, many national vocational leaders visited the California Polytechnic campus at San Luis Obispo, and a number at San Dimas.



These men without exception characterized the training program at this institution as a significant forward step among the technical educational institutions of the nation. The plan at Polytechnic to give the "usable" and vocational information especially the first two years, followed by the more professional and scientific work the last two years, had an especial appeal to these men.

At the same time, after visiting classes, talking with instructors and questioning students, they are generally agreed that the content of the four-year program at California Polytechnic is parallel in total content with their own agricultural and mechanics arts type of college, although presented from an extremely practical viewpoint of agricultural and industrial production and operation needs. Visitors included men engaged in teacher training or vocational supervision in such states as Georgia, Illinois, Ohio, Missouri, Utah, North Dakota and others. Many of these individuals are on the college and university faculties in their respective states.

At the conclusion of the first quarter of degree work, it may be stated that the students enrolled are of a high type, but with a definite vocational and technical objective which makes it essential that they have the project type of instruction offered on a college level at no other institution than California Polytechnic.

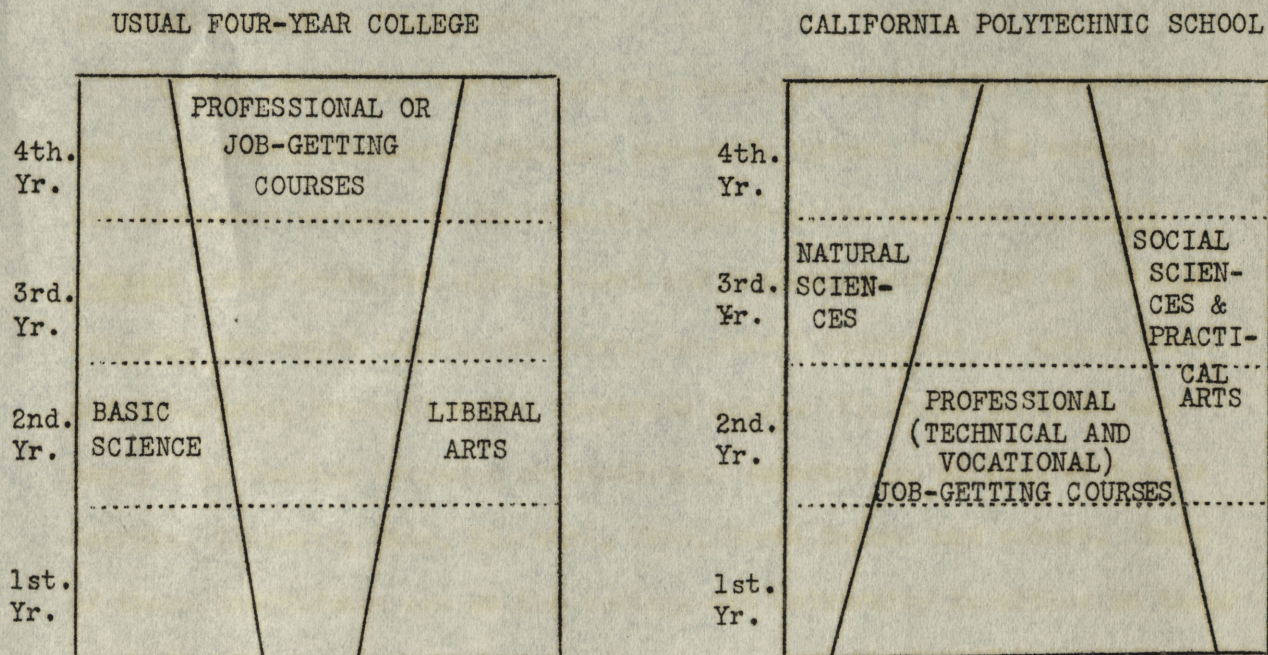
A key factor in the educational plan at California Polytechnic is that it is geared directly to student needs. In every college, there is a heavy "drop-out" between freshman and senior years, often leaving barely 25 per cent of the entering freshmen who ever graduate. Those who do not complete their professional training have contributed little or nothing to their earning ability.

At California Polytechnic a strong effort is made to correct this situation by grouping the technical and "job-getting" training in the first



two years, and building upon these skills and practical knowledges, a capstone of scientific fundamentals, and cultural offerings, in natural and social sciences and practical arts.

The comparison with the more common technical college pattern shows about the following:



Under the Polytechnic system, at whatever point a student leaves school, as many are bound to do because of finances, marriages, needed at home, offered a job or other cause, they have a maximum of earning capacity. This plan also 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 programs. In spite of the "upside down" program, it should be noted that in total content, the California Polytechnic offerings compare very favorably with the typical agricultural and mechanics arts type of college.

#### ENROLLMENT

The regular and special enrollment of an institution is not always significant. For example, during the period of early depression years, many colleges had marked decreases in enrollment, at the very time when education and technical skills were most necessary to secure employment,



and when there was least opportunity for young people to obtain immediate jobs. In other words, as a period when there was most time for education and least demand for work, college enrollment decreased in many instances.

At the present time, the reverse appears to be true. With employment approximating an all-time high and the National Defense Program barely started, college enrollment is at high levels all over the nation. At California Polytechnic, the regular enrollment exclusive of that concerned with the National Defense Program, has soared to new levels far in excess of last year or any previous year, while special enrollment has given an impressive total teaching load.

In checking the enrollment table, it will be noted that students are attending California Polytechnic from 48 of California's 58 counties, making the institution truly statewide in its scope. Indicative of the spread of enrollment are some of the border counties, such as Lassen, Modoc, Siskiyou and Humboldt which have sent a total of 25 students, or San Diego and Imperial with a total of 32 students.

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 13 counties, more students from 32 counties, and the same number from six counties. Fewer students are enrolled from San Diego county and San Luis Obispo county, where virtually every able-bodied man can find employment at good to high pay in defense occupations or army camp construction.

Greatest county increase came from Orange with 14 more students than last year, Santa Barbara following closely with an increase of 12 and Imperial with eight, Kings with seven and Tulare and Humboldt with six each. Such increases may be indicative of an educational trend, or may result from the attendance last year of "key" students who were popular in their high schools and communities, and whose enthusiastic recommendation of the institution is followed by a considerable group of other new students from that area the next year.



COMPARATIVE SUMMARY OF REGISTRATION, CALIFORNIA POLYTECHNIC, SAN LUIS OBISPO

County	January 4, 1940	December 30, 1940	Loss or Gain
Alameda	23	25	+
Amador	2	1	-
Butte	6	9	+
Calaveras	0	1	+
Colusa	3	5	+
Contra Costa	15	17	+
Fresno <i>San Joaquin</i>	24	23	-
Glenn <i>Eldorado</i>	6	7	+
Humboldt	7	13	+
Imperial	4	12	+
Inyo	2	2	=
Kern	17	18	+
Kings	6	13	+
Lake	3	0	-
Lassen	0	1	+
Los Angeles	185	197	+
Madera	6	5	-
Marin	3	1	-
Mariposa	0	1	+
Mendocino	5	8	+
Merced	15	16	+
Modoc	4	4	=
Monterey <i>Monterey</i>	6	8	+
Napa	0	1	+
Nevada	1	0	-
Orange	25	39	+
Placer <i>Plumas</i>	1	5	+
Riverside	24	24	=
Sacramento	9	7	-
San Benito	0	3	+
San Bernardino	34	34	=
San Diego	24	20	-
San Francisco	14	17	+
San Joaquin	19	16	-
San Luis Obispo	84	81	-
San Mateo	2	7	+
Santa Barbara	25	37	+
Santa Clara	15	18	+
Santa Cruz	9	10	+
Siskiyou <i>Shasta</i>	4	7	+
Solano <i>Sutter</i>	2	5	+
Sonoma	10	9	-
Stanislaus	24	19	-
Sutter	1	4	+
Tehama	2	7	+
Trinity	1	1	=
Tuolumne	0	3	+
Tulare	15	21	+
Ventura	11	9	-
Yolo	4	3	-
Yuba	6	5	-
Other States and Countries	29	67	+
CAA		48	
NYA		120	
Nat'l Defense Program		80	
	<u>737</u>	<u>1114</u>	



## GIFTS

During the year of 1940, many valuable gifts were made for the benefit of students at the California Polytechnic. Donations to Scholarships and to the Thoroughbred Horse Program will be discussed under these headings.

In addition to these valuable grants, Joseph Quinn, Fresno, gave the college an exceptionally well-bred Hereford bull calf, immediately after bidding \$310 for the animal at public auction; and Howard Vaughn, Dixon, gave the institution a purebred Suffolk ewe. A life-size statue of an athlete was given to the college by Andrew Bjurman, noted sculptor and father of a Polytechnic alumnus.

## NATIONAL DEFENSE PROGRAM

No institution in California has been more quickly utilized for the training of national defense workers, than California Polytechnic School. This has been possible because the technical and vocational training in the institution, particularly in the mechanic arts, most nearly meets the immediate needs of the defense industries. The program is divided into three phases - the pilot training of the Civil Aeronautics Administration, the National Youth Administration resident program, and the adult National Defense Training Program.

Civil Aeronautics Administration. The California Polytechnic School entered into a Civil Pilot Training Program in 1940 in which twenty students finished their flight training during the Spring quarter. These students were given thirty-five hours of flight training and seventy-two hours of ground school work under the supervision of the California Polytechnic School.

The flight training was given by Hoover Brothers and Thompson at the San Luis Obispo County airport and the ground school was given by the Aeronautics department of this school. The cost of this training was paid by the Federal government.



During the summer of 1940, forty-three students completed their flight training and ground work under a similar program under the Civil Aeronautics Administration. Both of the above classes were primary training.

Beginning with the Fall quarter of 1940 California Polytechnic School was allocated a quota of ten secondary students and twenty primary students under this same flight training program. The flight training for this group will be completed on January 15 at which time new students will be started in this flight training. The secondary students are required to have completed the primary flight training under the Civil Pilot Training Program and are given forty-five hours of advanced flight training and 126 hours of ground school work. On completion of this secondary quarter they are qualified to enter directly into the secondary phase of the Army Pilot Training Program.

Resident N.Y.A. Program. Beginning shortly after the opening of the Fall quarter at California Polytechnic School, the National Youth Administration started a resident program on the California Polytechnic School campus with 116 boys. The N.Y.A. organization has built housing units for this group of boys on a plot of ground which was leased from the school. The youth agency is entirely in charge of housing and feeding the boys and the school is responsible for their educational training and work programs. The boys go to school four hours a day and work four hours a day on the campus. At the present time the majority of them are enrolled in National Defense Training classes in machine shop, welding and aircraft sheet metal work.

National Defense Training Program (Adult). The California Polytechnic School entered into the adult National Defense Training Program in August of this year. The college has been operating classes of twenty adult men each in machine shop, welding and aircraft sheet metal work.



Under the National Defense plan, the Federal government pays the necessary operating expenses for these classes while the school supplies the facilities and equipment. With the additional National Defense training program and the N.Y.A. classes which come under National Defense it is necessary for the shop facilities to be operated from 4:30 a.m. until 10:30 p.m.

#### NEW COURSES AND CURRICULA

No broad changes were made during 1940 in individual course offerings or groups of courses making up a curriculum, except those necessary to expand the previous three-year program to a four-year offering terminating in the Bachelor of Science degree. Among the new courses in specific technical fields are such offerings as Fertilizers and Soil Management, Ornamental Plant Materials, Supervised Nursery Practice, Supervised Landscape Practice, Advanced Propagation, Advanced Poultry Plant Management, Civilian Pilot Training Ground School, Stress Analysis, Quick-Freezing Plants, Network Analysis, Electrical Measurements, Vacuum Tube Laboratory, Illumination Engineering, and Radio Frequency Laboratory. Among those in more general fields are offerings in Animal Nutrition, Agricultural Resources, General Economics, News Analysis, Technical Writing, Vector Analysis, Fluid Flow, Thermodynamics, Sound and Light, Sound Control, Organic Chemistry, Geology, Comparative Government, Contemporary Political Problems and State and Local Government.

The policy of the college regarding new curricula has been to make a widespread study of the placement opportunities in the field, before setting up the course offerings required in the curriculum. Occasionally the instructional staff and student enrollment will be developed by unique means.

For example, one new course group in Building Estimating, Quantity Survey, and Architectural Drafting was started in the Fall quarter of 1940.



The method of organizing this course was as follows: An immediate need developed for one new instructor in Mechanical Drafting for first-year students. In choosing an instructor for this Mechanical Drafting program the college selected a man who was qualified to teach the specialized subjects of Building Estimating, Quantity Survey and Architectural Drafting. The man employed has practically a full load of instruction with the Mechanical Drafting, but is able to work into his program a few students in this specialty field. As the number of students increases in the specialty field this instructor will be relieved from the Mechanical Drafting instruction and will devote his full time to this specialty field.

#### PLACEMENT

The California Polytechnic School has considered it an obligation to endeavor to secure employment for every recommended graduate. It has accomplished this through the depression years, until few institutions in the nation can point to a higher proportion of graduates immediately employed upon completion of the major curricula.

The class which was graduated in June, 1940, found increased employment offerings. While a number returned to complete requirements for the Bachelor of Science degree which had then just been authorized by the State Board of Education, virtually all of the rest were located in a short time on jobs in keeping with the nature and scope of their training.

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 coordinator 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.

The placement record follows:

AGRICULTURAL PLACEMENT

Many agriculture students completing the previous two-year or three-year offerings who could have been placed upon graduation, elected to return to college to try to make up necessary credits for degree awards. The record of 1940 graduates follows:

George Barnett . . . .	Returned to Polytechnic - Additional study.
Paul Bjurman . . . .	Standard Oil Company, San Luis Obispo.
James Blake . . . .	Student assistant- Polytechnic, San Luis Obispo.
Charles Boggs . . . .	East Side Ranch, Firebaugh.
Andy E. Bowman . . . .	United States Army, San Francisco.
J. Wesley Bridston . .	Buyer - Cornelius Packing Co., Los Angeles.
Lester A. Brown . . . .	In charge of beef cattle, Warner Brothers Ranch, Calabasas.
Avon Carlson (Voorhis) .	Salesman - Lumber company, Riverside.
John Carricaburu . . . .	Student body manager- Polytechnic, San Luis Obispo.
Chester N. Cash . . . .	Employe, Knudson's Creamery, Santa Maria.
John A. Chamberlain . .	Farming - Imperial Valley.
Charles A. Cook . . . .	United States Army Air Corps, Hemet Field.
Francis L. Daugherty . .	United States Army Air Corps.
Marcel DeBrish . . . .	United States Army Air Corps.
Lloyd F. Dille . . . .	Agricultural Inspection, Santa Maria.
Robert Dove . . . .	Returned to Polytechnic, San Luis Obispo.
Richard Dowdakin . . . .	United States Army.
Robert F. Ford . . . .	Chaffey Junior College, Ontario.
Danny Galatro . . . .	Employe, Edgmar Farms, Los Angeles.



Howard Graham . . . . Farming at home, Lancaster.

Lowell O. Lambert . . . Farming at home, Modesto.

Roy Lantz . . . . . United States Army Air Corps.

Ralph Lyall . . . . . Farming, San Bernardino.

Tom Mathews . . . . . Employe, Union Stockyards - Stockton.

Lester McCray . . . . Sales and Maintenance, J. G. Moore Tractor Co.,  
Santa Maria.

Harry Michel (Voorhis). . Employe, Insectary, Fillmore.

Robert Moss . . . . . Employe, East Side Ranch, Firebaugh.

Jack Nilsson . . . . . United States Army Air Corps.

Minoru Nitta . . . . . Poultry and truck farming, Santa Ana.

James Pappas . . . . . Returned to Polytechnic, San Luis Obispo.

Alex Park . . . . . Employe, Fawcett Farms, Los Banos

Jack Roesch . . . . . Farming at home, San Bernardino.

Kenneth C. Root . . . . Returned to Polytechnic, San Luis Obispo.

Donald Sande . . . . . Returned to Polytechnic, San Luis Obispo.

Leo Sankoff . . . . . Returned to Polytechnic, San Luis Obispo.

Clarence Sill (Voorhis) . Agricultural Inspection, Merced.

George Silva . . . . . Farming at home, Los Banos.

Arnold Solesbee (Voorhis). Citrus growing, Placentia.

Charles Solomon . . . . Returned to Polytechnic, San Luis Obispo.

Victor Tomei . . . . . Returned to Polytechnic, San Luis Obispo.

Jack Washington . . . . Returned to Polytechnic, San Luis Obispo.

William Welker . . . . . Farming, Los Angeles County.

Millard Wooley (Voorhis) . Whereabouts not known.

Carleton Yonge (Voorhis) . Agricultural Inspection, Riverside.

#### INDUSTRIAL PLACEMENT

The following is a list of placements for the Industry Division. It is interesting to note the very large percentage of students who are



following the work for which they were trained in school. It should be noted that very few students are working in occupations other than those for which they were especially trained.

#### Aeronautics Industries

Oliver Akers . . . . Flight student, Army Air Corps, Alabama.

Victor Bitter . . . . Engineering department, Solar Aircraft Corporation,  
San Diego.

Nathaniel Blankenship . Flight student, Flight School, Seattle.

Alfred Canclini . . . . Airplane mechanic, North American Aviation Company,  
Inglewood.

Moses Clemente . . . . Airplane mechanic, Santa Maria Airlines.

Lloyd Davis . . . . U. S. Government Aircraft mechanic, Sacramento.

Jack Egan . . . . Airplane mechanic, Pan American Airways, San  
Francisco.

Clark Farrell . . . . Airplane mechanic, United Airlines, Cheyenne,  
Wyoming.

Dale Ferguson . . . . Student, Flight training- Long Beach.

Leonard Hobby . . . . Engineering department, Douglas Aircraft Company,  
Santa Monica.

Perry McPheeters . . . Airplane mechanic, Pan American Airways.

Roy Mondo . . . . Airplane mechanic, North American Aircraft Company.

Ben Snow . . . . Flight training, Army Air Corps.

Arshan Zakarian . . . . Engineering department, Solar Aircraft Corporation,  
San Diego.

#### Air Conditioning Industries

Bruce Broemser . . . . Returned to California Polytechnic.

Donald Conaty . . . . Salesman, York Ice Machine Company.

Wells Gibson . . . . Frozen foods business - Warren W. Sullens, Merced.

Francis Jones . . . . Mechanic, Lockheed Aircraft Company, Burbank.

William Melvin . . . . Mechanic, Holly Heating Company, Pasadena.

Weldon Olson . . . . Mechanic, Heating & Plumbing, with father - Turlock.

Jay Wormser . . . . Mechanic, Heating & Plumbing, with father - S.F.



Phil York . . . . . Returned to California Polytechnic.

#### Electrical Industries

Arthur Beaulieu . . . . . Steam power stations, Pacific Gas & Electric Co.,  
Oakland.

Donald Calecanza . . . . . Returned to California Polytechnic.

Vernon Cassity . . . . . Steam power stations, Pacific Gas & Electric Co.,  
Oakland.

Ivan Crljinko . . . . . Electrician, Kimbal Electric Company, Canoga Park.

Emmett Ferguson . . . . . Electrician, Kimbal Electric Company, Canoga Park.

Raymond Fischer . . . . . Electrician, Westinghouse Electric Manufacturing  
Company, Los Angeles.

Russell Friend . . . . . Returned to California Polytechnic.

Francis Leach . . . . . Steam power stations, Pacific Gas & Electric Co.,  
Oakland.

Raymond Micheal . . . . . Steam power stations, Pacific Gas & Electric Co.,  
San Francisco.

Dale Mix . . . . . Steam power stations, Pacific Gas & Electric Co.,  
Oakland.

William Ruffner . . . . . Steam power stations, Pacific Gas & Electric Co.,  
Oakland.

William Schmid . . . . . Unknown.

Floyd Spessard . . . . . Steam power stations, Pacific Gas & Electric Co.,  
San Francisco.

Clinton St. John . . . . . Stanford University.

#### PROJECTS AND THE PROJECT FUND

The ability of students to conduct commercially-productive projects during their college training program, is the most significant feature of the California Polytechnic School educational offering. No other college in the United States has the facilities for, or the philosophy of, "learning by doing" as practiced at San Luis Obispo and San Dimas.

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 skilled



department heads, has grown from a few thousand dollars, to its present size of more than \$45,000.

A picture of the student project operation, and the status of the revolving fund, follow:

At the close of 1940, the project fund had a capital value of \$45,232, represented by a bank balance of \$8,204, a cash fund of \$15, and the remainder in student project collateral of livestock, poultry, feed and minor equipment. When each student project animal is sold, or livestock, poultry or plant product is marketed, the loan is repaid to the project fund with interest.

Last year, students marketed 139 beef steers, 120 sheep and 529 lambs, of a total value of \$23,261. These brought students a labor income of \$4,600. On hand in student projects at the close of the year were 215 sheep, 100 head of beef cattle and 150 market hogs.

Dairy students during the year produced \$15,502.86 worth of milk and cream, going principally to the college dining hall; and sold \$4,251.83 worth of animals. The entire dairy herd was leased from the state as a student cooperative project, and returned a net income of \$3,124.51 in addition to its educational value. In addition to more than 100 purebred Holsteins, Jerseys and Guernseys in the project herd, dairy students now individually own more than 70 head themselves. The entire herd now averages 440 pounds of butterfat annually per cow, compared with the state average of 250 pounds.

The poultry plant produced \$9,253 worth of eggs and \$4,006 worth of young stock and turkeys last year. Students had a labor income of \$4,057, and the poultry department showed a profit of \$1,842 for expansion and reserves. Fifty-one students carried projects, 19 in brooding, 22 in laying, and five in turkey brooding. Eleven students participated in the plant hatchery, with 6500 chicks brooded. Pedigreed pullets trapnested



totalled 740, and there were 2550 laying hens in project pens during the fall. A total of 41,000 hatching eggs and chicks were sold to high school vocational agriculture boys for their Future Farmer projects over the state. Polytechnic students raised and sold 470 turkeys, and the plant boasted of 21 hens with records of 300 eggs or near that figure the first year of laying.

Students in the ornamental horticulture department did not have an opportunity for labor income from self-owned projects, but were paid for campus maintenance work and the propagation of shrubs, flowers and trees. At the close of the year, the department had approximately 3000 plants on hand in gallon cans, all grown during the last year, and 300 shrubs in 5-gallon cans. Some 20,000 annual and perennial plants were grown and set out on the campus during the year, in addition to 300 trees and 450 shrubs. On hand now in "lining-out" rows ready to be "balled out" and planted around new buildings during the school year of 1940-41, are some 450 plants.

Students in the industrial division likewise were given ample experience in project operation, without a similar opportunity for labor income. Aeronautics students rebuilt and repaired a number of commercial planes, air conditioning students built several campus units and made some home air-conditioning units, and electrical industries students took care of all minor repair and service work on the campus.

#### SCHOLARSHIPS

A large number of scholarships have been provided by various agencies, to assist worthy Freshman students to enroll at California Polytechnic School. The number and scope of these scholarship gifts, each offered after careful investigation of the educational facilities and opportunities at Polytechnic, are believed significant of the high regard for the institution expressed in tangible form by various firms.



The major donor is Sears, Roebuck, which in 1940 offered 25 annual scholarships of \$100 each to outstanding applicants chosen by the college on the basis of need, scholastic ability, and educational objectives. For 1941, this offer is tentatively being expected to be continued, while two additional scholarships of \$100 each have already been subscribed for boys excelling in district livestock improvement programs at San Jose and Fresno.

For 1940, scholarships of \$100 each were also offered by Safeway Stores, Consolidated Chemical Company, and the South San Francisco Union Stockyards, based on proficiency in the marketing day program at South San Francisco. Some or all of these will probably be continued for 1940 on a different basis.

Scholarships of \$100 each were also offered in 1940 by the Challenge dairy cooperative, and the California Cattlemen's Association; and a \$50 scholarship by E. C. Loomis and Son of Arroyo Grande, California. An additional \$100 scholarship has been authorized for 1941 by the Poultry Producers of Central California. All the above scholarships are given only to boys enrolling in agriculture at Polytechnic.

Four additional scholarships of \$100 each are open to Polytechnic enrollees, or to boys entering other agricultural colleges. These are the Carl Raymond Gray scholarships offered by the Union Pacific System to boys in Orange, Los Angeles, San Bernardino and Riverside counties.

It is believed that for the school year beginning in August, 1941, close to 40 students will enroll with the aid of scholarships - a high percentage for an institution virtually without other endowments at the present time.

#### STUDENT LABOR

California Polytechnic has established a basic policy of providing a maximum amount of work through which students may add to their technical



experience, at the same time assisting in paying their college expenses. To operate the entire campus of 85 acres and farm of more than 1300 acres, the college employs no adult gardeners, no janitors, only two farm foremen who instruct students in maintenance, repair and farm operation work, no dining hall help except cooks.

Students do all livestock feeding and milking, care for the entire poultry plant of nearly 3000 birds, set out and maintain all campus landscaping, repair all fences, gates and most of the farm machinery, do most of the plowing, cultivating and harvesting of the crops; handle all but the major electrical repair jobs, operate the college power plant, service all air-conditioning and refrigeration equipment, and in many other ways "earn while learning."

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 activities reveals the following:

Analysis of Student Labor  
October, 1940  
(from payrolls)

* * *			
<u>Classification</u>	<u>No. of Employees</u>	<u>Payroll</u>	<u>Totals</u>
<u>STATE</u>			
Administration - San Luis Obispo			
Offices	3	\$ 72.10	
Fair Exhibit	1	78.40	\$ 150.50
Instruction - San Luis Obispo			
Agriculture	2	38.25	
Industry	1	50.00	
Related Subjects	13	119.95	
Library	2	47.40	
Printing and Mimeographing	3	60.65	316.25



<u>Classification</u>	<u>No. of Employees</u>	<u>Payroll</u>	<u>Totals</u>
Maintenance & Operation - San Luis Obispo			
Buildings	22	\$ 383.70	
Grounds	16	239.60	\$ 237.55
Automobiles	7	161.50	
Heat, Light & Power	3	<u>120.75</u>	\$ 905.55
Farm - San Luis Obispo			
General	50	395.40	
Meat Animals	9	249.70	1,895.57
Dairy	13	169.35	
Poultry	3	63.05	
Orchard	3	29.10	900.42
Field Crops	3	31.95	
Agricultural Mechanics	<u>4</u>	<u>32.10</u>	970.65
Total - San Luis Obispo	<u>158</u>		<u>2,342.95</u>
Administration - Voorhis Unit			
Offices	3	<u>38.25</u>	38.25
Instruction - Voorhis Unit			
Agriculture	13	111.95	
Library	<u>4</u>	<u>45.30</u>	157.25
Maintenance & Operation - Voorhis Unit			
Buildings	4	69.45	
Grounds	23	227.10	
Automobiles	6	59.10	
Repairs	2	<u>37.80</u>	393.45
Farm - Voorhis Unit			
General	<u>34</u>	<u>265.95</u>	265.95
Total - Voorhis Unit	<u>89</u>		<u>854.90</u>
Total - San Luis Obispo & Voorhis State	<u>247</u>		<u>3,197.85</u>
<u>PROJECT FUND - San Luis Obispo</u>			
Dairy	35	491.32	
Meat Animals	6	82.50	
Poultry	15	198.58	
Voorhis	<u>18</u>	<u>82.35</u>	854.75
Total Project Fund	<u>74</u>		<u>854.75</u>
<u>CAFETERIA-DORMITORY FUND</u>			
San Luis Obispo			
Cafeteria	63	1,238.97	
Dormitory	<u>19</u>	<u>180.15</u>	1,439.12
Total Cafeteria-Dormitory Fund	<u>92</u>		<u>1,439.12</u>
San Luis Obispo			



<u>Classification</u>	<u>No. of Employees</u>	<u>Payroll</u>	<u>Totals</u>
Voorhis Unit			
Cafeteria	12	\$ 165.15	
Dormitory	8	92.40	\$ 257.55
Total Cafeteria-Dormitory Fund Voorhis Unit	<u>20</u>		<u>257.55</u>
Total Cafeteria-Dormitory Fund San Luis Obispo & Voorhis	<u>102</u>		<u>1,696.67</u>
<u>FEDERAL NYA</u>	<u>64</u>		<u>900.42</u>
Grand Total Students' Payroll	<u>487</u>		<u>\$6,649.69</u>

A comparison of the figures shown here with the report for October, 1939, will indicate an increase in student labor of more than \$500, while the annual payroll including summer labor, gives a grand total of about \$60,000 earned by students as part-time employment.

Students paid out of the project fund for work in the dairy and poultry department are not included in the additional labor income from self-owned projects, of more than \$8,000, making a grand total of student earnings on the two campuses of nearly \$70,000.

#### THOROUGHBRED HORSE BREEDING PROGRAM

Mention has already been made of the establishment of a thoroughbred horse breeding program at California Polytechnic School. Such an unusual move requires considerable explanation.

One of the principal animal husbandry industries in the state is the breeding of thoroughbred horses. This industry should not be confused with horse racing. As a matter of fact, very few of the men who breed thoroughbred horses, race them. The animals are usually sold as two-year-old colts, to men who operate racing stables. Thus the raising of thoroughbred horses is not directly connected with racing itself. Thousands of thoroughbred horses are sold for pleasure riding, and it is estimated that in this



state, there is an investment of some \$50,000,000 in land, buildings, equipment and foundation stock. The industry is organized through a California Breeders' Association, with a governing board composed of a group of men of wealth, integrity and agricultural vision.

The breeding of other purebred stock has for generations been given institutional solidarity and respectability by association with colleges and universities. Professors of animal husbandry have served as secretaries of breed associations, and colleges have been the depositories of herd books, individual registry records and similar valuable and permanent information. No institution, however, has given particular aid to the thoroughbred horse industry.

The committee from the California Breeders' Association proposed a cooperative program whereby both the California Polytechnic, and the breeders, would benefit. The breeders proposed to donate six outstanding mares in foal to the college, and to keep these mares bred year after year to outstanding stallions, if the college would in turn become a centralizing agency for stud books and thoroughbred horse information, and would train young men in the raising and handling of thoroughbreds.

Colts produced in this program go into the annual sale sponsored by the breeders' association, and the proceeds are turned over to the college as abatement of expense for the care of the mares. The program calls for a constructive breeding plan, bringing together the best blood lines in the thoroughbred world to improve the general quality of horses in California. It also visions new placement opportunities for the college; breeders in the past having stated that it was difficult for them to find nearly sufficient numbers of young men with actual animal husbandry education and experience, for their many establishments.

Four of the six mares donated to this program were brought to the college before the end of 1940, and the other two will be provided within



the next few weeks. A senior student has been placed in charge of the thoroughbred horse barn operations, under the supervision of the head of the animal husbandry department.

Of great significance is the interest that this program has engendered in technical and vocational training, among the many thoroughbred breeders, many of whom are leading California business men who raise horses as a part-time activity. Many of these individuals see in California Polytechnic School a real outlet for their interest in helping young men get an education, and other philanthropic moves. The thoroughbred horse breeding program promises to extend beyond the confines of an animal husbandry enterprise and training field.

The preliminary program has been guided by an advisory board from the California Breeders' Association, which has worked closely with the college administration in arranging the details. This committee has been headed by Charles E. Perkins, owner of the Alisal Ranch, Solvang, and includes Charles E. Cooper, Rancho San Luis Rey, Bonsall; Walter H. Hoffman, Jr., Rancho Casitas, Ventura; Senator D. J. Metzger, Red Bluff; Harry S. Hart, Marwyck Ranch, Northridge; Carleton F. Burke, Greenfield Farm, Camarillo; Edwin Janss, Conejo Ranch, Camarillo; Henry P. Russell, president of the association, Double-H Ranch, Carmel; Walter T. Wells, El Rancho Oro Primero, San Fernando; Bing Crosby, Crosby Ranch, Rancho Santa Fe; John J. Knezevich, public relations director, Hollywood Turf Club, Inglewood; and B. K. Beckwith, field secretary, California Breeders' Association, East Pasadena.

Five mares have already been donated to the breeding program by Messrs. Perkins, Cooper, Crosby, Hoffman and Wells of the above committee. The school has also been fortunate enough to receive the gift of an excellently-bred thoroughbred stallion donated by A. T. Jurgens of Long Beach.



## ULTIMATE AND IMMEDIATE NEEDS

The needs of any educational institution may be divided into immediate and ultimate needs. Those classified as immediate needs include buildings, land and equipment essential to take care of an existing contingency; those classified as ultimate to take care of expanding enrollment, desirable new courses or curricula, or to replace facilities now existing but outmoded, insufficient or dangerous to student health and training.

### -Immediate Needs-

Under this heading are grouped those items for which there is a definite and demonstrable present demand, and for the lack of which training is actually suffering or living conditions are imperiled. An example (for which money has already been set aside) is the college sewage disposal system, built for a few hundred students and now required to care for around 1200, a definite menace to health.

Aeronautics Shop. The accompanying graph shows the rapid growth in aeronautics industries, a field certain to attract an increasing number of students for at least five years under the impetus of the federal defense program alone, and probably to continue in popularity with the inescapable growth of domestic aviation to follow the increased air-mindedness of the nation.

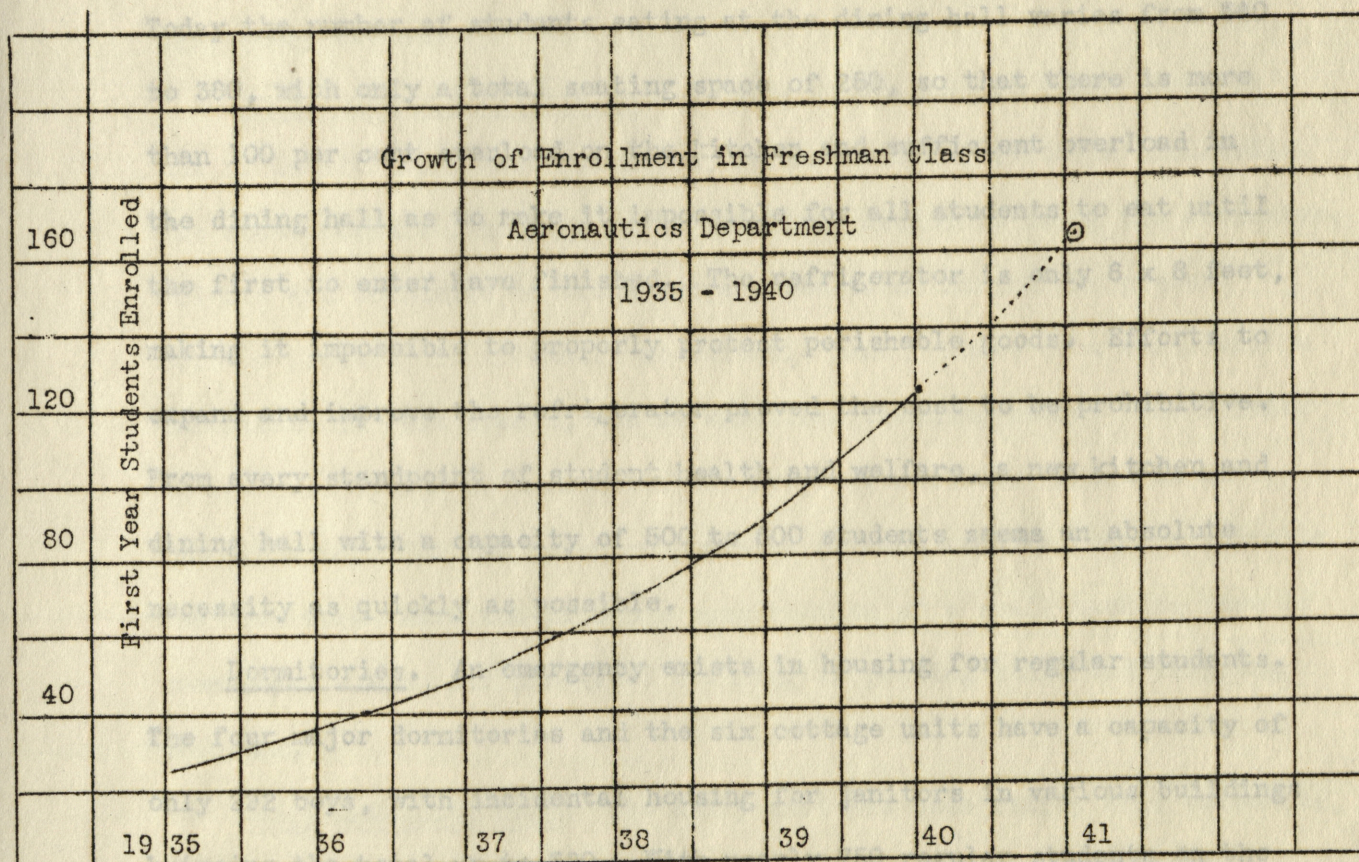
Aeronautics instruction was started in the California Polytechnic School in conjunction with an auto mechanics course in 1927. The aeronautics classes grew more rapidly than the auto mechanics classes until 1930 at which time the aeronautics department took over the shop originally built for the auto mechanics, then expanded into a warehouse building which joined this auto mechanics shop.

At the present time the aeronautics department is housed in buildings which were intended to accommodate a maximum of 75 students



while there are in the aeronautics department approximately 170 students.

The following curve indicates the rapid growth of this department as indicated by the number of entering students in the fall of each year from 24 students in 1935 to 123 freshmen in 1940. By projecting this curve one year in the future we find that the probable entering class for next year will be 165. With the present crowded conditions and an entering class of 165 next year it is almost imperative that more building space be provided. We have in this department almost enough equipment to take care of the larger group of students but are handicapped through the lack of floor space.



A similar growth chart could be made for many other departments of the college, some of which have similar building needs.

Agricultural Mechanics Shop. Agricultural mechanics is a service unit for all agriculture students, as well as a specialty for a few. The enrollment is in direct proportion to the total agricultural enrollment.



When the present facilities were built, there were barely a score of agriculture students - now there are nearly 30 times that number. Because of lack of room, hours per week spent in agricultural mechanics laboratory have had to be reduced. The single shop building is so crowded with each class as to be unsafe and unsatisfactory.

Dining Hall and Kitchen. Construction of a new dining hall and kitchen are almost imperative. The present dining hall and kitchen were built in 1910 at a cost of about \$15,000. Later an annex was built to increase the seating space, but the kitchen remains the same size as it was in 1910, when it was constructed to feed about 150 students. Today the number of students eating at the dining hall varies from 340 to 380, with only a total seating space of 250, so that there is more than 100 per cent overload on the kitchen and sufficient overload in the dining hall as to make it impossible for all students to eat until the first to enter have finished. The refrigerator is only 6 x 8 feet, making it impossible to properly protect perishable goods. Efforts to expand and improve the refrigerator proved the cost to be prohibitive. From every standpoint of student health and welfare, a new kitchen and dining hall with a capacity of 500 to 600 students seems an absolute necessity as quickly as possible.

Dormitories. An emergency exists in housing for regular students. The four major dormitories and the six cottage units have a capacity of only 292 boys, with incidental housing for janitors in various buildings bringing the total up to 320. With nearly 750 regular students on the San Luis Obispo campus, in addition to those housed in the NYA units and otherwise cared for, this leaves 430 students who room in the city. This situation has not been critical; now with 4500 men working at the local army camp and an estimated permanent increase in the city's population of nearly this number as various service fields require



additional personnel, boys are finding it almost impossible to find rooms. Room rent of present students has been doubled by their landlords in some instances from \$8 to \$16 per month; and most of the students have had a 25 per cent increase in room rents. A number not able to pay the high rents are being forced to drop out of college. This condition has been brought on by an emergency, but it will be several years before adequate housing is provided in San Luis Obispo to care for the sudden increase in temporary or permanent population. The state has only invested about \$150,000 in the permanent dormitories on the campus, exclusive of the six cottages. Additional facilities are very badly needed.

Crops Land and Facilities. Growing of commercial truck crops is one of California's most extensive, permanent and profitable industries. The state technical college is an excellent medium to teach the economics, science and mechanics of truck crops production; but on the present college property is virtually no suitable land. There is a considerable enrollment in this branch, and an excellent teaching staff. The climate of San Luis Obispo is unexcelled for crops production. There is an immediate need for the lease or purchase of land near the campus suitable for this work, with the probable construction of a small packing shed of commercial scope, for practical training in packing house and shipping problems.

Dairy Maternity Barn. The dairy unit has been fairly well cared-for, with new buildings for feeding, growing calves, and the herd bulls. There is an immediate need, however, for a dairy maternity barn, particularly because of the big increase in student-owned dairy projects on the college property.

Livestock Range. The meat supply of California comes primarily from commercial herds on the ranges of the state's foothills and vast



plains. Running a range herd of cattle or flock of sheep is a business requiring training in range grass management, animal husbandry, economics, marketing and other major phases. The present land of California Polytechnic is only sufficient to take care of the necessary purebred herds owned by the college, and the student meat-animal fattening projects. There is an immediate need for range land sufficient to carry a commercial herd of beef cattle and a commercial flock of sheep, with buildings suitable for lambing, calving and perhaps hay storage for supplemental feeding; in order to provide adequate and well-rounded agricultural instruction in the animal husbandry field.

Ornamental Horticulture. Development of a training school at the Voorhis Unit in Ornamental Horticulture, has been demonstrated to be an essential move. Southern California provides an exceptional placement outlet for young men skilled in estate management, park and nursery operation, home landscaping and similar fields. Money has been allocated for greenhouses and lath-houses at the Voorhis Unit of California Polytechnic near San Dimas, and the contract is expected to be let around the first of the year.

Gymnasium, Voorhis Unit. Physical education is universally recognized as necessary to student health, growth and social and physical development. The Voorhis Unit has no gymnasium, its present physical education facilities being only those available in fair weather, such as an out-door swimming pool, tennis, basketball courts, and an athletics field for baseball and similar sports. A gymnasium of a size commensurate with the probable ultimate growth of this unit, is vitally needed.

operation, is badly needed. -Ultimate Needs-

Under the heading of ultimate needs, it would be possible to project the requirements of the college five years, ten years or fifty years. To attempt to project too far embraces the strong possibility of error due



to changing educational and economical conditions. To fail to project far enough embraces equal possibility of error due to failure to make buildings large enough, or correctly locate them in terms of later expansion.

Therefore, under ultimate needs are listed only those items for which there can be seen a definite need based strictly on present enrollment and conservative growth. The plot-plan of the campus as drawn up by the State Department of Public Works, envisions an ultimate building development far beyond anything shown here, so that this list should in no way be construed as total probable future needs. In other words, these are items currently desirable, but which can be postponed in favor of those listed above as vitally essential to student welfare.

Under ultimate needs are first listed those items of importance in the student life. While the list might be frequently revised in priority, it may be presented about as follows:

Infirmary. The health requirements of more than 1000 persons on the campus at San Luis Obispo make an infirmary a vital necessity. Thus far, nothing but mild epidemics of diseases common to the state, have affected the students, but more serious outbreaks are always possible. There is no present means of isolation or hospitalization. An infirmary should be built as soon as funds are available.

Library. Reading and reference material are essential to sound education. The present library is housed in a small room of a temporary classroom unit. A permanent library well equipped with books, pamphlets and other literature on agricultural and industrial production and operation, is badly needed.

Auditorium. There is no room on the San Luis Obispo campus large enough, or with sufficient seating facilities, for the current student body. Campus entertainment is seriously curtailed, and student body



meetings cannot be fully representative. The college's place as a community cultural center, cannot be fulfilled. An auditorium is necessary to the fullest development of student life.

Beef Breeding Unit. Heading the list of ultimate agricultural needs is the beef breeding unit. The only building now available is an old barn of rough lumber, part of a farm added to the Polytechnic property by a purchase some years ago. This barn is not as good as found on many California commercial and purebred livestock farms. It should be replaced by a modern unit.

Isolation Units. For the maintenance of health in the herds and flocks, small isolation units are needed for the cattle and hog herds. These would also be of great help in carrying out present instruction in animal diseases, farm sanitation, parasitology and other courses.

Creamery. Present dairy manufacturing practice is obtained through supervised work in local commercial creameries. This involves time-consuming transportation of four miles each round trip, maintaining proper relationships with the creamery administration, and impossibility of close and constant teacher supervision. Construction of a small, non-commercial creamery unit on the campus for plant management and operation experience, is a definite need.

Poultry Unit. Inadequate facilities now exist for teaching hatchery practices and management, for feed and equipment storage, and housing a graduate student who acts as a day and night watchman, along with his other duties. This should be erected soon.

Horticultural Unit. In addition to land necessary for crops projects, a campus building is necessary for laboratory and class use. Such a building should be in close conjunction with greenhouse and propagation house facilities. With growing emphasis on horticultural operations, such a unit becomes more nearly a necessity each year



Beef Project Unit. Present facilities are inadequate for student needs in beef project operation. Land has already been graded for an addition to the steer feeding barns, to add to this project unit. A building is definitely needed.

Farm Machinery Building. Present facilities to house valuable farm machinery is insufficient. A new building is needed, not only to keep this machinery out of the sun, rain and wind; but to give agricultural mechanics students an opportunity for more adequate study in the care, repair, adjustment and operation of farm machinery.

Power Plant. The college power plant serves three primary needs: For student instruction in power plant operation, to supply campus power at a low figure, and to serve as an emergency unit in case of failure of the community utility service. The plant is now inadequate to care for the campus load, making it necessary to purchase considerable power commercially. It is also inadequate for most efficient student instruction. A new power plant unit, and improvements to the campus distribution system, are definitely needed.

Livestock Pavilion. Indoor facilities to display livestock for judging classes and for other purposes during inclement weather, make the ultimate construction of a livestock pavilion a requirement of the animal husbandry division.

Warehouse. Purchasing of supplies in large quantities permits large budgetary savings, but involves adequate campus storage space. Although a warehouse was finished in 1939, it will not care for the rapidly increasing needs of the institution.

Service Features. Several service features may be listed, placed at the end not because they are least necessary, but because in some instances they involve the prior construction of buildings listed above. These service needs include expenditures in the irrigation system, a new



water tank, and various services to new and existing buildings.

Incinerator. An incinerator is needed as a health and cleanliness factor on the campus.

### CONCLUSION

The California Polytechnic School is now operating in an era of favorable circumstances. Understanding of the function, and functioning, of this technical college, is increasing throughout the state. Employers look more and more widely to this school for well-trained employes. Campus building and improvement is going forward at a satisfactory rate. Enrollment is increasing as rapidly as (or more rapidly than) can be cared for. At some near future date, the name of the institution should be changed because "Polytechnic School" brings to the mind of almost every uninformed person the picture of a district trade school rather than a statewide technical college of depth and breadth in its curricula. A name such as "California State College," "California State Technical College," or "California College of Agricultural and Mechanics Arts," would be much more descriptive and correct. However, this can be corrected some time in the future.

At present, the college asks only that it be permitted to work out its established program in harmonious relationships with the state's educational system. It is asking no change in function or level, and no budgetary increases except those occasioned by definite demands of a large student enrollment.

In conclusion, may I invite especially the new members of the board, as well as the older appointees, to visit the campus at any time.

Sincerely yours,

*Julian A. McPhee*  
President, California  
Polytechnic School