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REPORT TO THE STATE BOARD OF EDUCATION

ON THE

PROGRESS OF THE CALIFORNIA POLYTECHNIC SCHOOL

SAN LUIS OBISPO, CALIFORNIA

January 7, 1937

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of college level offered.

2. The adoption of California Polytechnic as a desirable institution by scores of students of a type equal to those entering any other institution of higher education in the state. A number of the members of the freshman class had been offered scholarships at other colleges and universities. Ten of them had received California Bankers' Association awards as the outstanding agriculture students in their respective high schools. Eight of them were enrolled on scholarships given by various corporations for outstanding youth. A considerable number had successfully attended junior colleges.

The net result of this change in attitude gave the California Polytechnic school the largest freshman class of college level in the history of the institution--more men students enrolling than in several of the State Colleges. The quality was as high as the number. At the close of the first quarter, less than 5 per cent were dismissed because of scholastic difficulties, in the face of a stiffer curricula than ever before required.

This generalization in the history of the institution will serve to bring these reports up to date, and provides a bright chapter in comparison with the rather gloomy report of two years ago.

II. THE BUDGET

Principal increases in the budget over the previous fiscal year, were to take care of the increased enrollment, and to provide replacement of laboratory equipment and supplies which had been depleted during the years when budgetary provisions were decidedly inadequate.

The following table shows the comparison in the budget between the 87th Fiscal Year, and the 88th, or current, Fiscal Year:

REPORT TO THE STATE BOARD OF EDUCATION ON THE PROGRESS OF THE CALIFORNIA POLYTECHNIC SCHOOL, SAN LUIS OBISPO, CALIFORNIA - JANUARY 7, 1937.

FOREWORD: This is the third annual report of this type. In order to make it possible for members of the State Board of Education and others who have received this report, to compare the progress with that of previous years, the same index headings are being retained.

I. HISTORY

A rather complete history of the school was given two years ago. At that time it was pointed out that one of the major obstacles in the growth of the school was its dissimilarity from the conventional, academic type of institution. Another obstacle was the failure of the school to find its place in the level of instruction, and in the most desirable type of curricula.

The last three years have seen a decided change, both from within the institution and from the attitudes of education as a whole. The entire philosophy of education has undergone a change during the so-called depression years. Experience with those on relief pointed out the millions of "unemployables"--those without any vocation or trade. Economists pointed out that lack of training would be a permanent bar to those people ever getting steady employment. New tax laws put a premium on the skilled craftsman, while better economic conditions gave a new impetus to agricultural production. All of these had a definite effect on the attitude toward vocational education carried to technical college level. Surpluses of professional and "White-collar" workers was another element in changing the attitude toward vocational education.

The net result of this grouping of conditions was:

1. The adoption of California Polytechnic as an approved institution of higher learning, ranking with other institutions in the three years of work

	87th Fiscal Year		88th Fiscal Year	
	Amounts	Percentages	Amounts	Percentages
Salaries & Wages	$71,404.73	68.10	$91,383.17	68.80
Mat. & Supplies	15,767.28	15.04	21,980.00	16.54
Service & Expense	7,563.59	7.21	10,120.00	7.61
Prop. & Equipment	10,114.38	9.65	9,370.00	7.05
Totals	$104,849.98	100.00	$132,853.17	100.00

This separation of budget items reveals another interesting comparison. Even though the California Polytechnic school is of the technical, or trade type necessarily involving small classes and a maximum of individual instruction, the per pupil cost is found to be surprisingly low on the basis of salaries and wages paid--$274.00 per year for the number enrolled during the first quarter. It must be remembered, too, that the salaries and wages include a considerable office and administrative staff needed to handle the 1400-acre farm and extensive laboratory properties not found in the average institution. It must also be remembered that the usual procedure is to divide the total enrollment for the year, into the budget item, to secure an average; while we have only the first quarter's enrollment as a basis. For example, the actual salaries charged to instruction are $55,201.37, and the probable number of students to be enrolled during the year more than 400. Dividing the number into the budget amount gives an amount of $138.00--a much more fair comparison with the average institution with classroom buildings and a typical campus. On the other hand, all of the farm is essential for instructional purposes and is a necessary charge against the per pupil cost. The other statistics are given simply as a more equitable basis for comparison.

Finally, in reference to the budget, it may be said that not a dollar has been expended except in the face of certain and definite present needs. No investments have been made for the future, with an almost certain further increase in enrollment and necessity for more extended facilities. It has been possible to make little provision as yet to replace facilities constructed 30 years or more ago, which have long since outlived their usefulness and are

even becoming unsafe. These needs are discussed more fully later in the report.

Budget demands, too, have been such that it has not been found possible to put into effect a recommended system or salary increases based on experience and years of service and adopted some four years ago. Only in one or two instances were any changes made. This is in the face of increased living costs, and an average salary somewhat lower than that paid in other institutions for instructors of equal training and ability. A continuation of this policy ultimately may lead to the loss of highly-desirable staff members to other institutions or commercial concerns.

III. ENROLLMENT

For the third successive year, the enrollment has shot up to a new level, bringing 345 men of college level, to the institution for the fall quarter of 1936-37 alone. This is an increase of 68 students over the enrollment at the end of the fall semester of 1935-36, California Polytechnic having changed from the semester to the quarter system in the meantime. Not only was the total number greater than the previous year, but the increase was also greater--68 compared with an increase of 41 the previous year.

The big growth was in the freshman class, indicating a greater interest throughout the state on the part of undergraduates. Of the 345 students enrolled, more than 200 were freshmen. If this proportion is retained, together with the addition of a full year of instruction, every facility of the institution will be crowded during the next two or three years. All dormitory rooms were filled before school opened in the fall, and some 60 students were sent to private homes in the city of San Luis Obispo.

Of greatest significance is the statewide educational service of California Polytechnic, with enrollment from 43 different counties.

Of equal significance is that students are attending in large numbers from distant counties--for example, 64 from Los Angeles county, 17 from San Diego county, five from Colusa county, 20 from Fresno county, and 11 from Sonoma county. There are more students enrolled from Los Angeles county than from San Luis Obispo county, which is ample evidence in rebuttal to the statement of an educational investigating committee of a few years past which found that the California Polytechnic school was serving "largely local needs."

Comparable enrollment for the fall semester of 1935-36, and the fall quarter of 1936-37, is shown by counties:

County	Number of Students	
	Fall Semester 1935-36	Fall Quarter 1936-37
Alameda	3	7
Butte	2	2
Colusa	1	5
Contra Costa	1	1
Fresno	17	20
Glenn	1	1
Humboldt	4	5
Imperial	2	3
Inyo	1	1
Kern	2	2
Kings	1	2
Lake	2	3
Lassen	1	0
Los Angeles	42	64
Madera	1	3
Mendocino	2	2
Marin	0	2
Merced	10	10
Modoc	2	0
Monterey	9	6
Napa	2	5
Orange	2	9
Placer	0	1
Riverside	11	4
Sacramento	3	2
San Bernardino	8	10
San Diego	13	17
San Francisco	3	1
San Joaquin	3	4
San Luis Obispo	54	40
San Mateo	1	1
Santa Barbara	14	19

(Continued)

County	Number of Students Fall Semester 1935-36	Fall Quarter 1936-37
Santa Clara	8	5
Santa Cruz	3	3
Siskiyou	1	2
Solano	2	7
Sonoma	4	11
Stanislaus	8	10
Sutter	1	1
Tehama	1	2
Tuolumne	0	1
Tulare	11	14
Ventura	6	4
Yolo	1	2
Yuba	1	2
	265	316
Other Countries and States	12	29
TOTAL	277	345

IV. TYPE OF INSTRUCTION

In comparison with last year's report, there was a considerable difference in the type of instruction offered, although the basic philosophy of the vocational and technical training offered, or the ultimate goal of the graduate, has not been changed in any degree.

The major change in type of instruction was to divide the curricula into three major levels:

1. Degree-transfer, in which a student might get a maximum of scientific background, technical and vocational information and skills, to successfully pursue his chosen vocation and at the same time be eligible to transfer to a degree-granting institution without loss of time.
2. Technical certificate, in which a student in three years of study would receive full recommendation for various technical employment but would not be eligible for transfer to a degree-granting institution with full satisfaction of lower-division requirements.
3. Vocational certificate, in which a student in two years of study based

on a maximum of technical and vocational courses and a minimum of related subject matter, would receive recommendation for less-highly technical employment.

Any entering student who had been graduated from high school, was given an opportunity to enroll in the curricula of his choice. A number who enrolled for degree-transfer work dropped into the three-year technical course after a few weeks, leaving the majority in this three-year curricula, and smaller numbers in the degree-transfer and vocational groups.

At the same time, the courses were re-codified to bring their terminology more closely in line with the conventional names. Whereas chemistry, or bacteriology had been included previously as an integral part of the Dairy 1, or Poultry 1 course, it was now set out as a separate unit, in order that it would have transfer value and units. In general, this has strengthened rather than weakened the vocational value, since men who specialize in natural science and biological science and who have a vocational outlook, have been employed for such instruction.

For the current year there are 67 students enrolled in the degree-transfer curricula. This means that they will receive virtually all of the technical training the institution affords, but may plan to go on for an academic degree as an honor and a "label." This is almost a necessary condition, since there are virtually no institutions offering work beyond the level of California Polytechnic in its technical fields. Unless the student wishes to go into a professional field, it will be possible only for him to satisfy his graduation requirements as to natural and social sciences in other colleges, but not possible to get much additional major work. A considerable number of these students plan to attend one of the various State colleges.

California Polytechnic now faces the same condition which every other college has faced at some time in its history or formation. That condition

is a continued demand on the part of the undergraduate for a diploma similar to, and equal to, that of other institutions. For several years, graduates of California Polytechnic have been given Certificates indicating recommended work in a particular vocation. Now a third year of work has been added in keeping with the level of employment demands for older and better-trained young men. It is apparently only a short step from here to the four-year college curricula.

At the same time that the type of instruction was changed to better meet student and employment needs, opportunities were expanded. Three major divisions were added to the courses, offering full curricula in Truck and Field Crops, Deciduous Fruits, and Air Conditioning; in addition to the previous majors in Landscape Gardening, Meat Animal Husbandry, Dairy Husbandry, Dairy Manufacturing, Poultry Husbandry, Aeronautics and Electrical Industries. At the opening of school, two more divisions were tentatively started and appear now to be on a permanent basis--Agricultural Inspection, and Agricultural Mechanics. The latter will remain also as a service field for all agriculture courses, as it has been for many years; however, the major will permit instruction for young men who ultimately plan to become high school agricultural mechanics teachers, or those who plan to become agricultural machinery specialists on large estates and corporation farms. The Agricultural Inspection curricula is designed to train young men for the various fields of inspection work in the counties and border quarantine stations, as well as for private producers and packing houses. The courses are based on the needs of, and approved by the State Department of Agriculture--in other words, recommended graduates of the course will fit specific employment needs of the state department.

Less change has been made in the aeronautics curriculum than in many others, since this had been based on the requirements for the various

United States Department of Commerce licenses; and had required three years of matriculation for both mechanis and construction licenses. As an example of the efficiency of this type of work, out of 12 seniors who took the United States Department of Commerce license tests last spring, 11 passed every test. The usual percentage, from private schools specializing in this type of instruction, or from those engaged in the industry, is about ten per cent.

V. EQUIPMENT

Again in contrast with last year's report, considerable change has been made and will continue to be made, in the physical equipment. Many of the additions and betterments are to replace antiquated equipment.

Major construction of new buildings during the last year, was principally confined to the last three months, when five new agricultural buildings have been started, some of which are almost completed. They include a central swine unit, a beef feeding barn, a dairy and beef herd sire barn, a dairy calf barn and a dairy cattle feeding barn. All of these structures have a definite place in the livestock instruction program, and several will be directly used in the student project program.

The establishment of new curricula in the fall was preceded by some important changes in facilities. A new Air Conditioning division was set up and the first series of demonstration equipment was provided. Plant science equipment for a dozen new courses, and animal science equipment for an equal number, was provided. These included two complete laboratories as well as the smaller paraphernalia.

Re-utilization of the old creamery building for animal science, and creamery use, was ordered. Machinery to re-equip the creamery plant is being ordered and will be installed on the lower floor, while dairy, and science classes, are being taught on the second floor. This building has not been

used for instructional purposes since 1927.

The livestock herds and poultry flocks have not been materially increased during the last year, being about as large as present facilities permit. Quality of the livestock and poultry was maintained, with animals bred on the farm and sold to students taking top honors in the livestock shows, and with the poultry plant having produced 15 hens in the last two years with records of more than 300 eggs each.

Two major buildings are in the current construction program. One is the indoor plunge for which money has already been earmarked to the extent of $80,500.00, and the other is the first unit of a new classroom building. Plans for the plunge have been drawn and approved, and specifications are being prepared contingent to calling for bids.

In betterments and additions, about a mile of campus road was paved, the athletic field was surrounded by a seven-foot fence, ground was prepared for new tennis courts, a new artery to bring commercial trucks into the campus was constructed, two new garage units were constructed--one for state cars and the other for student cars. A large gully in the center of the campus was connected by drains to an existing system, and filled in.

VI. PROJECT OPERATION

Continuation of the project system of teaching is basic with the California Polytechnic School, and the increase in enrollment without provision for increased project facilities, forms the most serious problem of the entire institution. A more adequate water supply is essential to any expansion in the agricultural projects--a need which appropriations alone cannot provide.

However, this situation is being cared for at present to such an extent that each student has an opportunity for practice on a commercial scale. A summary of the projects for the fiscal year follows:

Meat Animals Department

Approximately 56 boys carried meat animals projects during the school year 1935-36. The production follows:

40 Beef cattle raised in projects with a total value of $4,322.90. These animals were awarded $525.00 in prize money at the various shows and fairs and netted the students as their share of the projects $610.83. A profit of $434.47 was returned to the school project fund from these animals.

251 Swine raised in projects, with a total value of $5,651.35. Prize money - $172.50. Net profit to students - $1,468.15. Net profit to project fund - $517.34.

49 Sheep raised in projects, with a total value of $501.89. Prize money $188.00. Net profit to students - $249.68. Net profit to project fund - $36.37.

Dairy Department

Of the 24 students enrolled in the dairy department during the school year, eight did all the milking of the dairy animals with an average monthly earning of $138.66. They were paid on the basis of the production of the animals. Ten students were in charge of supervised practice jobs in the dairy with an average monthly earning of $112.00. There were six student owned projects made up of 12 animals valued at $1,310.00. (Herd average BF per cow $301.89)

Poultry Department

July 1, 1935 to June 30, 1936 - 24 student projects in laying hens, brooding, and incubating:

Total eggs produced	251,699	
*Gross egg sales		$5,881.42
*Gross young stock sales		1,739.10
*Gross hen sales		274.79
*Poultry project fund net profit		1,371.05
Average number of laying hens (Hen day basis)	1,532	
Number of laying projects completed	12	
Student project labor income laying projects		692.01
Number of brooding projects completed	12	
Students project labor income, brooding projects		181.66
Number of chix hatched & brooded	3,840	
Chicks sold to High School Future Farmers-	1,500	
Hatching eggs sold to High Future Farmers-	6,100	
Total hatching eggs sold	43,740	

(*Figures taken from monthly project office reports)

Horticulture Department

The students in the Horticulture Department conducted projects as follows:

1½ Acres youngberries.
1¼ Acres tomatoes.
2 Acres miscellaneous vegetables.
600 Flats of miscellaneous plants were produced for sale while 2000 Flats were used in the landscaping of the school's 85 acre campus.
Students from the horticultural department had an average monthly income of $55.00 from landscaping work done for citizens of San Luis Obispo.

Aeronautics Department

Planes reconstructed during 1936:

	Valuation
One Boeing 100 for United Air Service, Burbank ----------	$6,000.00
One Travelair 2000, Cherokee Flying Club, Santa Barbara -	1,200.00
Two Curtiss Juniors, for students Calif. Poly. ----------	1,000.00
Labor on planes ----------	600.00

Planes now in process of repair:

One American Eagle, Harry Nuss, Jr., San Luis Obispo ----	900.00
One Buhl "Bull Pup," Martinsen & Jones, San Luis Obispo--	500.00
Two Waco 10 Biplanes, for students Calif. Poly. ---------	1,000.00
One Swallow Biplane, for student, Calif. Poly. ----------	500.00
One Stinson Reliant for resale ----------	9,000.00
One Yarrick Special Racer for resale ----------	1,000.00
Labor on above to date ----------	300.00

Electrical Industries Department

Report of projects completed on the campus during the calendar year ending December 31, 1936.

Wiring for light and power in various departments and buildings, among which were the Administration Building, Poultry Department, Dairy Barn, Milking Barn, Automobile Repair Shop, Auto Storage Building, Welding Shop, Aeronautics Department, Chemistry Laboratory.

Rebuilding power lines and installing Transformers.
Wiring signal system in main offices.
Repairing and rewinding motors and control equipment.

A total of 26 jobs with a labor value of ----------	$410.00
Operation of power plant by student operators ---------	288.00
Total	698.00

Air Conditioning Department

(For calendar year 1936)

Work completed:	Estimated Value
Ventilating system for the chemistry department ----	$125.00

	Estimated Value
Service of refrigerating equipment on campus	$15.00

Work Under Way:

Construction and installation of heating equipment, in 8 rooms on the campus	1,000.00
Installation of temperature, humidity, and air, circulation control in the green houses	200.00
Dust control in feed grinding room	50.00
Rebuilding coils for cafeteria and dairy refrigerators to get better cooling characteristics	100.00

Welding Shop

Miscellaneous odd jobs of welding and construction of equipment for use on the campus	250.00
Blacksmithing and welding for the buildings under construction	75.00

Machine Shop

Miscellaneous repair jobs for the campus as a whole	50.00

VII. STUDENT LABOR

Probably no institution in the United States provides a greater percentage of its students with some supplemental income through student labor, than does the California Polytechnic school. No work is performed on the campus by adults which can satisfactorily be performed by students. The entire labor in the poultry plant, dairy, power plant, janitor service, grounds and similar activities, is done by the students. This is frequently a good device for additional training, as well as supplemental income. Figures for the month of October may be taken as a typical month, showing that 204 students received work with an average pay of $12.40 per month. The total number of students employed during October - 204 - should not be contrasted with the 212 shown the previous year, without some explanation. In the first place, the students this year were financially in a much better position than for several years, and there was less demand for student work. In the second place, the number last year - 212 - was different students employed during the entire year, while this report shows those employed during a single month.

At the same time, a considerable number of students who will have reasonable incomes from their own projects, (which are not listed below) are not being given any paid labor jobs this year. The work report for October, 1936, follows:

Type of Employment	Number Employed	Payroll
STATE		
Administration (Office)	3	$57.00
Instruction - Agriculture		
Crops	1	30.00
Agricultural Economics	1	21.00
Instruction - Industry	4	38.84
Instruction - Related Subjects	4	32.94
Janitors	19	174.75
Grounds keepers	9	144.61
State automobiles - service	3	113.90
Farm		
General	23	151.85
Meat Animals	13	128.00
Poultry	3	97.12
Agricultural Mechanics	6	17.82
Dairy	3	24.37
	Total State	$1,032.20
PROJECT FUND		
Poultry	12	$107.33
Dairy	19	342.33
Meat Animals	1	15.00
Feed Room	5	53.35
Horticulture	2	13.87
	Total, Project Fund	$531.88
CAFETERIA, DORMITORY, POWER HOUSE		
Cafeteria	17	$353.02
Dormitories	9	117.00
Power House	3	100.12
	Total, Service	$570.14
FEDERAL (NYA)		
Miscellaneous	44	$395.33
GRAND TOTALS	204	$2,529.41

In the above table, the amounts paid out of the project fund are not to be confused with the income from self-owned student projects, which does not appear in here but does appear in the student project summary. Neither

should the amount paid out of state funds under the heading "Farm" be confused with project operation. The above was labor performed in connection with the state-owned foundation herds and flocks. However, under the project fund above is included the labor in the poultry plant and dairy herd, both of which are owned by the state but leased to the project fund for management. The project fund has been developed through the cooperative efforts of the students and faculty and has assets of $26,000.00. It is used to finance students in their projects and to carry on many farm operations at the school.

VIII. STUDENT PLACEMENT

Placement of recommended graduates has long been considered an integral function of the California Polytechnic--in fact, it has not considered its function complete until every recommended graduate has been placed. In this service, the school has been unusually successful, placing from a majority to all of its recommended graduates straight through the depression years.

Last year, there was a marked change in agricultural placement trends. Whereas in previous years students were very anxious to get jobs immediately, last year it was almost impossible to get boys for permanent employment. With a return of farming to better incomes, a number of boys went to the home farms with prospects of better incomes than in working for some of the large livestock ranches, dairies, poultry plants, etc. Another large group who had completed the two-year course offered at that time, elected to return for the third year of work added this fall, and refused proferred employment.

On the other hand, every recommended boy in the aeronautics department was "snapped up" by the aircraft industry. The complete list of placement follows:

AGRICULTURE

Ralph Adams ---------- Buttermaker, Challenge Creamery, Los Angeles

John Bateman ---------- Dairy herdsman, Rocky Hills Farm, Exeter.

Earl Buell ---------- Farming in partnership with father, Buellton.

Fred K. Beecher ------- Plant operator, Borden Creamery Co., Los Angeles.

Ray Biedenwig --------- Farming in partnership with father, Modesto.

Gordon Foster --------- Plant operator, creamery, San Diego.

Paul R. Danbom -------- Swine herdsman, J. A. Thorpe, Lodi.

I. F. Kawaoka --------- Poultry business with father (6000 hens), Petaluma.

Charles McGarvey ------ Turkey business with father, Atascadero.

Roy McMartin ---------- Operating own farm, Hamilton City.

James F. Taresh ------- Farmer in partnership with father, Rio Oso.

Robert Townsend ------- Ranching near Spearhead, South Dakota.

Harry Whitesides ------ Manager Aggeler-Musser Seed store, Gardena

Gordon Conlee --------- Ranching near Chico.

George Vogt ----------- Farming with father near Adin.

Russell Davis --------- Purchased own ranch near San Luis Obispo.

Lawrence Jespersen ---- Farming with father and brothers, Atascadero.

The following students returned for an additional year of work: W. Lindsay Boggess, Fred Alley, Fred Bradley, Bernard Butcher, Alvin Candee, Ival Ford, Robert Cocke, John Gilli, Charles Iddings, Harry Linville, Wilbur C. Kinney, and Malon Moore.

One student, Walter Murphy, transferred to the university at Davis; and the whereabouts of two, Paul Plummer and Alexander K. Nicol, are unknown.

INDUSTRY

The following aeronautics graduates of 1936 were placed:

Joel Carlson ---------- Northrup Aircraft Corporation, Inglewood.

Robert J. Christensen - Douglas Aircraft Corporation, Santa Monica.

William C. Hoover ----- Lockheed Aircraft Corporation, Burbank.

Richard Huntsinger ---- Douglas Aircraft Corporation, Santa Monica.

Philip Jensen --------- United Air Service, Burbank.

Jack Martin ---------- Palo Alto Air Service, Palo Alto.

Baldwin Reinhold ------ Lockheed Aircraft Corporation, Burbank.

J. Atwood Rodgers ----- Pacific Airmotive Corporation, Burbank.

Harley Smith ---------- Pan-American Airways, Alameda.

Lloyd Smith ---------- Air Associates, Inc., Glendale.

Alden Turner ---------- Stearman Aircraft Corporation, Wichita, Kans.

Howard S. Wilson ------ Lockheed Aircraft Corporation, Burbank.

The following graduates of the Electrical Industries Division were placed during 1936:

Edward Berghuis ------- Assembler, Square "D" Electric Company, Los Angeles.

Allen Burnett --------- Operator, Southern Calif. Edison Co., Visalia.

Earl Coleman ---------- Assembler, Square "D" Electric Co., Los Angeles.

Paul Friel ------------ Factory, Westinghouse Elec. & Mfg. Co., Emeryville.

Dwaine Henderson ------ Service Dept., Westinghouse Elec. & Mfg. Co., Los Angeles.

Walter Klausman ------- Elec. Service Dept., Columbia Steel Co., Pittsburg.

Morris Levy ----------- Repair Dept., Bureau of Power and Light, Los Angeles.

Walter Linquist ------- Did not wish placement - went to work at home.

Edward Luttropp ------- Laboratory Asst., Shell Development Corp., Emeryville.

Richard Morton -------- Testing, Westinghouse Elec. & Mfg. Co., Emeryville.

Glenn Roberts --------- General Electrical and shop work, Atlas Electrical and Engineering Co., San Francisco.

Stanley Rogers -------- Service Dept., Westinghouse Elec. & Mfg. Co., Los Angeles.

Vernon Rush ----------- Switchboard Dept., Westinghouse Elec. & Mfg. Co., Emeryville.

Fredrick Southard ----- Elec. Construction, Pacific Gas and Elec. Co., Stockton.

Harry Watson ---------- Service Dept., U. S. Electrical Machinery Co., Los Angeles, later transferred to Insulation Dept., Westinghouse Elec. & Mfg. Co., Emeryville.

James Young ---------- Service Dept., Westinghouse Elec. & Mfg. Co., Los Angeles.

Former industrial division graduates were assisted in improving their placement as follows:

Harold Gilliland ------ Placed with United Air Service, Burbank.

Jack Reingpach -------- Placed with Westinghouse Elec. & Mfg. Co., in Transformer Department, Oakland.

Hubert Gaskin --------- Electrical, U.S. Elec. Machinery Co., Los Angeles. Later transferred to Pac. Tel. & Tel. Co., San Luis Obispo.

Elmer Holloway -------- Electrical, Pac. Tel. & Tel. Co., San Luis Obispo. Later transferred to U.S. Electrical Machinery Co., Los Angeles.

John Milsap ---------- Aeronautics, Pan-American Airways, Alameda, Mechanic.

Phil Taylor ---------- Aeronautics, Lockheed Aircraft Corp., Burbank, general factory work for promotion into the engineering department.

William Burns --------- Electrical, Seaside Electrical Co., Ventura, Motor Dept.

All of the sophomore aeronautical students, who wished to work for the summer, were placed for summer employment at the factories in southern California.

IX. SERVICE TO THE STATE PROGRAM OF AGRICULTURAL EDUCATION

One of the major objectives in the reorganization of the California Polytechnic school in 1933, was the service that such an institution could render to the entire state educational system, particularly in the field of vocational agricultural education. It was with that objective in mind that the chief of the state bureau of agricultural education, was placed as director of California Polytechnic; and the institution was later made a responsibility of the bureau. Such a procedure permits the most desirable coordination between the state technical college and the program in the secondary schools, with a maximum of service provided to the latter.

The service features include the following major fields:

1. Help and advice of agricultural experts at the school to the agricultural teachers in the secondary schools.
2. Providing foundation animals and poultry for high school projects, of quality superior to that obtainable elsewhere.
3. Providing a centralizing agency for publications of the bureau, teacher-training materials, and supplies for the high school Future Farmers of America chapters.
4. Providing a centralizing agency for a widespread series of radio programs extending agricultural education to homes and schools in addition to the regular classes.
5. Providing physical facilities for teacher-training. (Since this has been discussed in a separate section in previous reports, it will be treated separately in this report.)

During the last year, it has been possible to extend the help and advice of the agricultural experts on the California Polytechnic faculty, to a greater degree than ever before. This has been made possible by the addition of several faculty members, increasing the fields of specialization, and at the same time making it possible to occasionally shift the teaching load and permit members of the staff to get away for a week at a time.

This type of service is absolutely essential to the general program of agricultural education in the state. In such a diversified state, it is impossible for a single agriculture teacher to be an expert in livestock, poultry, dairy cattle, a score of widely different field and truck crops, deciduous fruits, citrus fruits and even sub-tropicals--yet that is what some of them are called upon to do. The result is that they need all the assistance they can get, in planning and carrying out the all-important project programs for their students. It must be realized that there are some 9,000

high school boys in the state, studying vocational agriculture from about 250 teachers. This is a tremendous field for service, and it will be many years before the California Polytechnic can approach a fulfillment of its responsibility.

In the service of providing foundation animals and birds, it may have been noted in the report of the poultry plant at the school, that 7,600 hatching eggs and baby chicks were sold directly to high school boys, and it is known that some of the 43,740 hatching eggs sold went eventually for this purpose. Some of the eggs were of such high-laying strains that it would have been impossible to get them from hatcheries at comparable prices.

The demands for project animals for California Polytechnic students kept the number available to high school students at a rather low figure. Attempts were made to get additional range land, to have a source of well-bred beef calves for the high school students; but none was found adjacent to the school. However, a carload of lambs was bought and distributed from the school, and a number of dairy and beef calves, and breeding swine, were sold.

The school continued to serve as a centralizing agency for publications. Principal work done was the monthly California Future Farmer magazine, which reached an average of 7600 persons per month last year. The magazine contains informative articles on agricultural production and management, as well as news of the Future Farmer activities. Other publications included a secretary's notebook for Future Farmer chapters, a practice project record book, and minor supplies such as membership cards, livestock show exhibit cards, radio announcements, etc.

The school continued to serve as a centralizing agency for radio programs. A total of more than 100 were either written, or edited, and produced under the direction of members of the school faculty or bureau of agricultural education. These included 12 programs on the western Red network of NBC, 35 programs on the California Red network of NBC, 13 programs over station KQW,

San Jose; 32 programs over the Chico station, and a number of special Western and National programs.

The school continued to serve as a meeting place for vocational agriculture groups, including the annual convention and state judging contests for the Future Farmers of America in the spring, and the summer sessions and conference of the California Agricultural Teachers' association, the California Dairy Council, farmer groups, etc.

X. TEACHER TRAINING

One of the most important functions of the California Polytechnic school is in the training of Smith-Hughes vocational agriculture teachers.

The need for high school vocational agriculture teachers in California is increasing annually, and has exceeded the supply for the last three years. Under the Bureau plans, twenty or more graduates of Davis, or other agricultural colleges, are selected from among the 50 or 60 applicants annually, and are given a year of intensive training known as the "Cadet Year". Half of the cadets are placed in the fall in selected high schools for practice teaching and supervision; the other half enroll for graduate courses and for a heavy work schedule at California Polytechnic. The nature of the school with its large agricultural enterprises being conducted on commercial lines, gives an excellent opportunity for the cadet teachers to develop the vocational skills which they will need so badly in teaching practical farming. Last year 19 cadets finished the year, and all were placed in teaching positions.

XI. CHARACTER BUILDING

This phase of the student education at California Polytechnic was given greater emphasis than ever last year. Clubs and campus organizations were formed to draw self-centered students out of their own circle. Installation of a campus union store tended to be a fraternizing influence. Establishment

of dramatics courses last fall, and the employment of a full time director of music, were other steps in the development of a well-rounded graduate. The Music director has made excellent progress, with a high type of student band, a glee club, a school orchestra and various smaller vocal groups, one of which recently appeared on a coast-to-coast radio network program.

At the same time, the various character-building influences of the past were continued. Emphasis placed on doing such a good job, and accomplishing so much scholastically that full recommendation can be made for employment, is paramount in the student mind. The net result is that there is virtually no discipline problem in the entire school--probably less than in any other institution in the state, in total number or proportionately.

XII. GENERAL NEEDS

Two or three years ago, there was a definite need for an improved attitude on the part of other educators throughout the state--both in institutions of higher learning, and secondary schools from which the San Luis Obispo institution draws its freshmen--toward both the principles and the methods employed at California Polytechnic. This was due in part to the previous history of the institution, and in part to the fact that California Polytechnic is "different"; that it does not fit into the routine academic education program which grows in an unbroken line from kindergarten to graduation in letters from a university.

It may be said that this condition is changing. This year, many boys of the highest type, mentally, and morally, and with definite objectives, came to California Polytechnic on the recommendation of principals and senior counselors. This was not true a few years ago.

At the same time, the presidents of the State Colleges, in several meetings, accepted the lower division work at California Polytechnic as being equal to that of the various State Colleges. This, too, was recognition of the desirable type. It may thus be concluded that the need is being partly

met, and that such sentiment will continue to grow.

As to physical needs, however, this is another matter. Last summer when repairs were about to be made to Anderson Hall, one of the original buildings on the campus, it was discovered that the structure was beyond repair, and unsafe for alterations. This structure has housed some of the science classes, and the library. The report of the state architects revealed that a new classroom building is therefore imminent.

With the other two buildings of approximately equal age, it is certain that they must soon be replaced also; therefore any discussion of new buildings means beginning them as units of a group which will eventually replace the three original buildings.

Based on the long-time needs, the following have been submitted by the department heads as the ultimate building and equipment needs for the next four or five years:

AGRICULTURAL BUILDINGS AND EQUIPMENT

Symbols:

A - From present available funds.
B - From next year's budget.
C - Next year or shortly after.
D - Desired but not immediate need.

Equipment and Repairs

Demonstration Desk for basement Ag. Ed. Bldg.	A 1	$225.00
Microscope Case, Annex, (20 microscopes)	A 2	50.00
Laboratory Table, Annex	A 2	50.00
Renovating Dairy Manufacturing Laboratory	A 3	3,000.00
Dairy Manufacturing Machinery	A 4	8,000.00
Grain Grinder	A 5	400.00
Shelves Dairy Office	A 6	10.00
Repairs to Ag. Ed. Bldg.	A 7	200.00
		$11,935.00

Buildings and Equipment

Water System	A 1	$8,000.00
Plant Industry Building	A 2	20,000.00
Plant Industry Equipment		4,000.00
(Carried Forward)		$32,000.00

Buildings and Equipment (Continued)

(Brought Forward)		$32,000.00
Feeder Hog Unit and Pens	A 3	6,000.00
Central Poultry Building	A 4	18,000.00
Central Poultry Building Equipment		2,000.00
Quarantine Barns (2)	A 5	5,000.00
Construction of half of New Bridges	A 6	1,000.00
One new Silo and Move 2 old Silos	A 7	1,000.00
6 Project Laying Houses	A 8	7,500.00
		$72,500.00
Agricultural Mechanics Building	B 1	$50,000.00
Agricultural Mechanics Building Equipment		15,000.00
Beef Breeding Unit	B 2	15,000.00
Slaughter House and Anatomy Laboratory	B 3	12,000.00
Slaughter House and Anatomy Equipment		1,000.00
Horse Barn and Paddocks	B 4	22,800.00
Feed Storage, Scales	B 5	8,000.00
Feed Storage Equipment		2,500.00
Brooder Houses (4)	B 6	8,500.00
Incinerator	B 7	2,500.00
Pedigree House (Poultry)	B 8	8,000.00
Poultry Range	B 9	1,000.00
		$146,300.00
Implement Shed	C 1	$6,000.00
Six Laying Houses	C 2	7,500.00
Wagon Shed	C 3	4,000.00
Beef Herdsman's Cottage	C 4	4,000.00
Dairy Dormitory	C 5	3,000.00
Remainder of Plant Industry Unit	C 6	80,000.00
Trap Nest House	C 7	5,000.00
Water Supply	C 8	5,000.00
Poultry Cottage	C 9	4,000.00
		$118,500.00
Remaining half of new Bridges	D 1	$1,000.00
Judging Pavillion	D 2	20,000.00
Manure Pit	D 3	900.00
		$21,900.00

INDUSTRIAL BUILDINGS AND EQUIPMENT

Aeronautics Department

Flexible Shaft Grinder	$175.00
Scintilla Magneto Service Set	315.00
Aligning Jig and Arbors	100.00
Spot Welder	1,500.00
Dynamometer	3,000.00
Aeronautical Instrument Test Set	500.00
Metalizer	500.00
Shore Scelerscope for Hardness Tests	350.00
Tensil Test Set	250.00
Blue Printing Machine	400.00
	$7,090.00

Welding Department

Light Electric Welding Outfit	$400.00
Heavy Electric Welding Outfit	750.00
	$1,150.00

Machine Shop

4 - 9" Bench Lathes, Individual Motor Drive	$500.00
6 - 11" Lathes, Individual Motor Drive	3,600.00
1 - 14" Shaper, Individual Motor Drive	1,400.00
	$55,000.00

Electrical Department

Megger	$300.00
Oscillograph	1,500.00
Dynamometer	1,500.00
Coil Spreader and Taper	350.00
Induction Voltage Regulator	650.00
	$4,300.00

Buildings

Aeronautics Department	$30,000.00
Addition to Electric Building	20,000.00
	$50,000.00

Air Conditioning

New Equipment	$4,000.00
	$4,000.00

MISCELLANEOUS BUILDINGS AND IMPROVEMENTS

Roads	$10,000.00
Infirmary	10,000.00
Cafeteria Remodeling and Equipment	15,000.00
Renovations to Dormitories	20,000.00
Rebuild Shop Units	50,000.00
Aero. Hangers and Runway	15,000.00
Tennis Courts	5,000.00
	$125,000.00

The following improvements will also be needed within the next few years to keep pace with the growth and development of the school: Stadium and Athletic Field, Dormitory with a capacity for 80 students, Handball courts and addition to Gymnasium, Auditorium, and Office Building and Library.

It has been customary to include at the end of the annual report, some samples of the published material at the school. Since much of this material has been sent to the Board Members from time to time, it is not considered of any particular value to include this with the annual report.

It is hoped that this report will enable you to have a clear picture of the progress and needs of the California Polytechnic.

Respectfully submitted,

Julian A. McPhee, Director