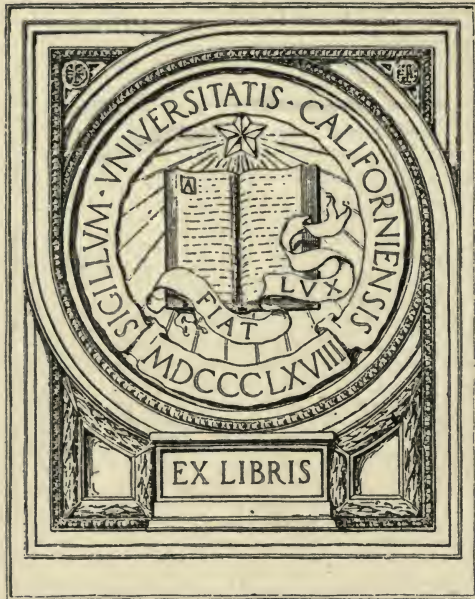


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Department of
Public Instruction

Oakland, California.



The Board of Education wishes to inform the patrons of the Oakland public schools that the following courses are offered in certain schools:

FOREIGN LANGUAGES IN ELEMENTARY SCHOOLS.

Free instruction in foreign languages will be given in the seventh and eighth grades of the following schools next term beginning July 31, 1916:

University School, 48th and Webster Sts.: French, German, Spanish, and Latin.

Intermediate School, 12th Ave. and E. 19th St.: Latin and German.

Vocational School, 12th and Market Sts.: Spanish.

Pupils who complete satisfactorily two years' work in a foreign language in the grammar school are given one unit of high school credit.

ORCHESTRA.

Free instruction in orchestral instruments will be given during the coming term in the seventh and eighth grades of the Intermediate, Vocational, and University Schools.

THE VOCATIONAL SCHOOL.

Pupils who have completed the sixth grade will be admitted to this school, the purpose of which is to provide preparatory trade and related academic instruction for boys and girls who desire to prepare for practical wage-earning occupations and to continue at the same time a general education. Practical shop instruction will be given to those boys who desire to learn printing or some branch of the machinery or building trades, as machine shop practice, pattern making, blacksmithing, forging, carpentry, cabinet making, electrical construction, and such principles of constructive design as apply to the trades taught, and to girls who desire training for the occupations of dressmaking and millinery. A regular student who has selected his trade will spend half of his time in the shop upon work which directly prepares for his occupation, and the other half upon such academic subjects as English, history, arithmetic, geography, drawing, and music. By omitting shop work, an opportunity is offered mature pupils to enroll in two different classes and complete two grades in one term.

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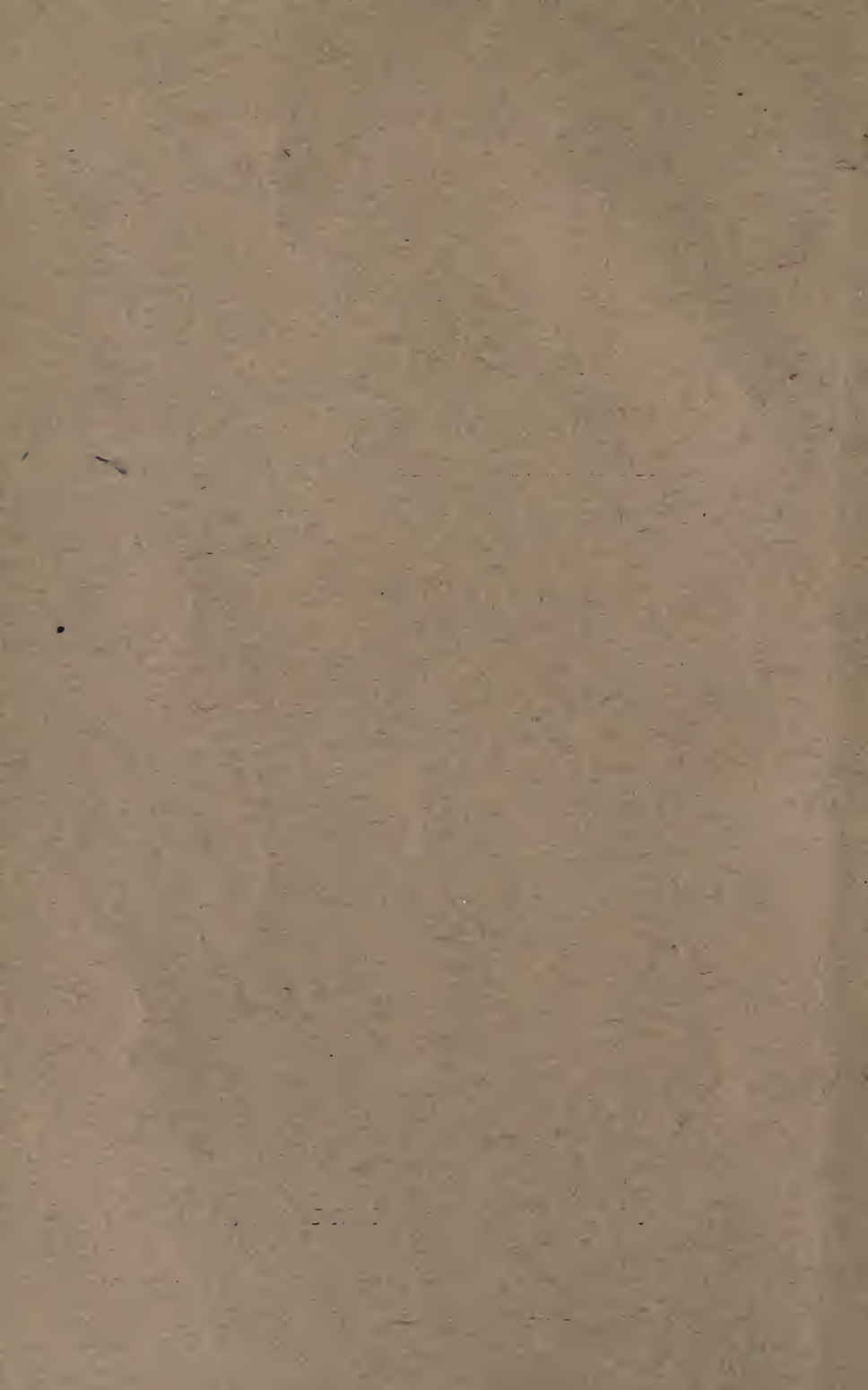
DEPARTMENT OF
PUBLIC INSTRUCTION
OAKLAND CALIFORNIA

SCHOOL DIRECTORY
1916-1917

BOARD OF EDUCATION BULLETIN

NUMBER 2

NOVEMBER, 1916



BOARD OF EDUCATION
OF THE
CITY OF OAKLAND

City Hall, Fourteenth and Washington Streets.

OFFICERS

MISS ANNIE F. BROWN, President.
MR. D. W. PRATT, Secretary.

MEMBERS OF THE BOARD OF EDUCATION.

	Address.	Telephone.
MR. LOUIS ABER,	Hotel St. Mark, Oakland.....	Oakland 6000
MR. HARRY L. BOYLE,	978 75th Ave., Oakland..	Elmhurst 718
MISS ANNIE F. BROWN,	600 29th St., Oakland.....	
MR. F. B. COOK,	1831 10th Ave., Oakland.....	Merritt 2511
MR. W. H. EDWARDS,	820 54th St., Oakland....	Piedmont 6896
	Business: City Hall, Oakland.....	Lakeside 3600
DR. A. S. KELLY,	First Natl. Bank Bldg., Oakland..	Oakland 442
MRS. H. E. HAWES,	1522 23d Ave., Oakland.....	Fruitvale 2008

BOARD OF EDUCATION MEETINGS.

Regular meetings of the Board of Education are held on the first, second, third, and fourth Mondays at 4:30 P. M., and on the first Thursday at 4:30 P. M., of each month.

COMMITTEES OF THE BOARD OF EDUCATION.

Teachers: Directors Hawes, Cook, and Kelly.

Community Activities: Directors Boyle, Hawes, and Kelly.

Purchases: Directors Aber, Cook, and Hawes.

Grounds and Buildings: Directors Kelly, Aber, and Boyle.

Revenue and Finance: Directors Cook, Aber, and Boyle.

Commissioner Edwards and President Brown are ex-officio members of all committees.

CALENDAR.

First term opens July 31, 1916.

First term closes December 15, 1916.

Second term opens January 2, 1917.

Second term closes June 1, 1917.

VACATIONS

One week, beginning October 16, 1916.

Two weeks, beginning December 16, 1916.

Two weeks, beginning March 26, 1917.

TEACHERS' CLUBS OF OAKLAND.

The Oakland Teachers' Association:

Mr. B. F. Allison, President.

Miss Edith Hirsch, Secretary-Treasurer.

The Schoolmen's Club of Oakland:

Mr. G. E. Mortensen, President.

Mr. H. D. Brasefield, Secretary.

The Schoolwomen's Club of Oakland:

Miss Rose E. Beaty, President.

Miss M. C. Maguire, Secretary.

The Principals' Study Club:

Mr. N. A. Ricciardi, President.

Miss E. A. Kane, Secretary.

The Teachers' Advisory Committee:

Mr. H. D. Brasefield, Chairman.

Miss Helen Leach, Secretary.

EDUCATIONAL DEPARTMENT

ADMINISTRATION

Name	Position	Address
Barker, Mr. A. C.....	Superintendent of Schools.....	326 Athol Avenue.
Cox, Mr. E. Morris.....	Assistant Superintendent of Schools..	3059 Capp Street.
Avery, Mr. Lewis B.....	Assistant Superintendent of Schools..	29 Westall Avenue.
Talbert, Mr. Wilford E.....	Director of Reference and Research..	2021 Channing Way.
Hudgins, Mr. Guy.....	Secretary to the Superintendent.....	2502 Bancroft Way.
Dann, Miss Elizabeth M.....	Assistant Secretary.....	3801 Telegraph Avenue.
Tobey, Miss Mabel A.....	Stenographer	2504 East 24th Street.
McFarland, Miss Elise W. ..	Stenographer	692 31st Street.
Anderson, Mrs. Mabel C.....	Clerk	654 8th Street.

SUPERVISION

Vandergaw, Miss Ida.....	Supervisor of Primary Work.....	1109 Oak Street.
Woods, Mr. Glenn H.....	Director of Music.....	330 San Carlos Avenue.
Trutner, Mr. Herman.....	Supervisor of Bands and Orchestras..	5429 Lawton Avenue.
Dalton, Mrs. Nina.....	Supervisor of Music.....	1277 Howe Street.
O'Neil, Miss Blanche.....	Supervisor of Music.....	19 Napier Avenue.
Meyer, Mr. F. H.....	Director of Drawing.....	2119 Allston Way.
Sellander, Miss May.....	Supervisor of Drawing.....	219 East 20th Street.
Boone, Miss Cora.....	Assistant Supervisor of Drawing.....	225 41st Street.
Cauch, Mr. F. R.....	Supervisor of Manual Training.....	2304 Webster Street.
Robbins, Mrs. L. W.....	Director of Home Economics.....	2830 Benvenue Ave.
Dickie, Mr. George E.....	Director of Playgrounds.....	328 Warwick Avenue.
Pfund, Mr. G. H.....	Director of Physical Training.....	2304 Webster Street.
Hicks, Mrs. Vinnie C.....	Director of Child Study Laboratory....	2843 Forest Avenue.
Childs, Mr. C. W.....	Lecturer	1309 Castro Street.
Wheeler, Mr. R. S.....	Director of Public Lectures.....	599 Scenic Avenue.
Coffey, Mr. Edward H.....	Supervisor of Spanish.....	2727 Benvenue Avenue.
Hanna, Miss Florence M.....	Supervisor of German.....	2613 Durant Avenue.
Moore, Mr. W. E.....	Supervisor of Penmanship	733 53rd Street.
Cooper, Mr. W. J.....	Supervisor of History.....	1825 San Juan Avenue.

HEALTH DEVELOPMENT AND SANITATION.

Name	Position	Address
Foster, Dr. N. K.....	Director	609 Santa Ray Avenue.
Wythe, Dr. Margaret.....	Assistant to Director	4247 Terrace Street.
Morken, Miss Jean M.....	Nurse	3531 Grove Street.
Hartwick, Miss Ethel.....	Nurse	668 57th Street.
Hughes, Miss Helen H.....	Nurse	295 23rd Street.
Connelly, Miss Velma.....	Nurse	476 Wickson Street.
Lyons, Miss Jane.....	Nurse	6444 Hillegass Avenue.
Meyer, Miss Marguerite.....	Nurse	525 Oakland Avenue.
Cole, Miss Clare A.....	Nurse	3531 Grove Street.
Pallady, Miss Lucile	Nurse	593 31st Street.

ATTENDANCE

Shane, Mr. C. N.....	Attendance Officer	5719 College Avenue.
Hammond, Mr. William A.....	Assistant Attendance Officer.....	3020 Champion Street.

BUSINESS DEPARTMENT

EXECUTIVE OFFICES

Pratt, Mr. Dan W.....	Secretary and Business Manager.....	3040 Market Street.
Yorker, Miss E.....	Assistant Secretary.....	1813 Harrison Street.
Hannaford, Mr. A. L.....	Chief Clerk	3529 West Street.

FINANCE

Garrett, Mr. J. A.....	Accountant	1500 Everett Avenue.
Wickland, Mr. A. M.....	Bookkeeper	930 East 14th Street.
Wentworth, Miss Garland W.....	Bill Clerk	541 28th Street.
Hughes, Miss Marjorie D.....	Stenographer	901 59th Street.

PURCHASING

Bridgman, Mr. H. W.....	Purchasing Agent	1015 Grand Avenue.
Richards, Miss Alice.....	Stenographer	165 John Street.

BUILDINGS AND GROUNDS.

Wilson, Mr. Frank J.....	Superintendent of Buildings, Grounds..	96 Frisbie Street.
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SCHOOLS HAVING SPECIAL FEATURES AND CENTERS FOR SPECIAL WORK

	Grades	Number of Teachers					Departmental Work	Auditorium	Club Rooms	Band	Orchestras	Bath Rooms	Supervised Playgrounds, No. 1	Supervised Playgrounds, No. 2	Special Classes
		Day Elementary Schools	Kindergarten	Evening Elementary Schools	Day High Schools	Evening High Schools									
Allendale.....	1-8	10.56	1												
Bay.....	1-8	17.48	1				◆								
Beulah.....	1-4	1.00													
Campbell.....	1-4	6.12	1												
Claremont.....	1-8	21.60	1				◆								
Clawson.....	1-8	16.32	1				◆	◆	◆					◆	
Cleveland.....	1-6	4.16	.43					◆	◆	◆					
Cole.....	1-8	19.60					◆	◆	◆	◆					
Dewey.....	1-8	10.52	1				◆	◆	◆	◆				◆	
Durant.....	1-8	25.00	1				◆	◆	◆	◆				◆	
Elmhurst.....	1-8	20.68	1				◆	◆	◆	◆				◆	
Emerson.....	1-8	24.40	1				◆	◆	◆	◆				◆	
Franklin.....	1-6	20.32	1				◆	◆	◆	◆				◆	
*Fremont High.....	9-12			1.60	51.00	2.80	◆	◆	◆	◆	◆	◆	◆	◆	
Frick.....	1-6	5.16						◆	◆	◆					
Fruitvale.....	1-8	11.42	1					◆	◆	◆					
Garfield.....	1-8	23.80	1	2.00			◆	◆	◆	◆				◆	
Grant.....	1-8	24.00					◆	◆	◆	◆				◆	
Harrison.....	1-6	4.08	1					◆	◆	◆				◆	
Hawthorne.....	1-8	15.72	1				◆	◆	◆	◆				◆	
Highland.....	1-8	15.52	1					◆	◆	◆				◆	
Intermediate.....	7-8	19.48					◆	◆	◆	◆				◆	
Jefferson.....	1-8	18.68	1				◆	◆	◆	◆				◆	
Lafayette.....	1-6	25.72	1					◆	◆	◆				◆	
Lakeview.....	1-8	20.20					◆	◆	◆	◆				◆	
Laurel.....	1-6	4.16	1					◆	◆	◆				◆	
Lazear.....	1-6	12.24	1					◆	◆	◆				◆	
Lincoln.....	1-8	26.00					◆	◆	◆	◆				◆	
Lockwood.....	1-8	17.56	1				◆	◆	◆	◆				◆	
Longfellow.....	1-8	18.66	1				◆	◆	◆	◆				◆	
Manzanita.....	1-6	8.70	.57					◆	◆	◆				◆	
McChesney.....	1-6	12.32	1					◆	◆	◆				◆	
McChesney An'x.....	1-2	2.00						◆	◆	◆				◆	
Melrose.....	1-8	11.72	1					◆	◆	◆				◆	
Melrose Heights.....	1-8	14.52	1					◆	◆	◆				◆	
*Oakland High.....	9-12			7.60	36.63	10.40	◆	◆	◆	◆	◆	◆	◆	◆	
Peralta.....	1-4	4.00						◆	◆	◆				◆	
Piedmont.....	1-8	15.60					◆	◆	◆	◆				◆	
Prescott.....	1-8	24.80	1	2.00			◆	◆	◆	◆				◆	
Santa Fe.....	1-6	12.06	1					◆	◆	◆				◆	
Sequoia.....	1-7	5.22						◆	◆	◆				◆	
Stonehurst.....	1-3	1.00						◆	◆	◆				◆	
*Technical High.....	9-12				86.02	10.00	◆	◆	◆	◆	◆	◆	◆	◆	
Tompkins.....	1-6	11.24	1					◆	◆	◆				◆	
*University High.....	7-12	4.50			13.65		◆	◆	◆	◆				◆	
Vocational High.....	7-12	14.89			8.53	1.80	◆	◆	◆	◆				◆	
Washington.....	1-8	21.68	1				◆	◆	◆	◆				◆	
West Oak. Kgtn.....	K		1					◆	◆	◆				◆	
Total.....		624.41	30.00	13.20	195.83	25.00	24	20	18	20	26	17	10	22	6

Total Number of Principals and Teachers..... 888.44

*The Number of Day Teachers includes pianists and librarians, but not clerks.

ALLENDALE SCHOOL.

Penniman and 38th Aves. (E. 14th St. car marked "38th Ave." at 12th and Broadway to Penniman Ave. One block west.)

- Allison, Mr. Benjamin F.**, Principal, 657 Vernon St., Oakland.
Peebles, Miss Edith A. (8B, 8A), 2241 9th Ave., Oakland.
Baldwin, Miss S. Florence (7B, 7A), 1205 1st Ave., Oakland.
Leasure, Miss Jessie A. (6B, 6A), Kenwood Apts., 24th and Telegraph Ave., Oakland.
Houghton, Miss Leora (5B, 5A), 1050 Elbert St., Oakland.
Roberts, Miss Carrie E. (4B, 4A), Hotel Royal, 20th and San Pablo Ave., Oakland.
Mosher, Miss Gertrude L. (4A, 3B), 4064 Agua Vista St., Oakland.
Glendenning, Miss Clara (3A, 2B), 160 Lake St., Oakland.
Collier, Miss Marguerite (2A, 1B), 178 10th St., Oakland.
Brunner, Miss Elsie F. (1A), 823 53d St., Oakland.
Murphy, Miss Margaret (Kgn.), 1231 Brush St., Oakland.
Cunningham, Miss Olivia (H. E.), 6/25 time, 1109 Oak Street, Oakland.
Hunt, Mr. George J. (Sub.), (M. T.), 8/25 time, 384 35th Street, Oakland.
Putnam, Mr. William (Custodian), 3715 Suter St., Oakland.

BAY SCHOOL.

Sixty-second St. and San Pablo Ave. (San Pablo Ave. car at 14th St. and San Pablo Ave. to 62nd St.)

- Sackett, Mr. George L.**, Principal, 90 Montell St., Oakland.
Departmental teaching in 6B, 7th, and 8th grades:
Heydorn, Mrs. Alice M. (Music, English), 2201 Harrison St., Oakland.
Clarke, Miss Katharine B. (Drawing), 3/5 time, 6538 Dana St., Oakland.
Bowers, Miss Blanche (English), 1702 13th Ave., Oakland.
Shaw, Miss M. J. (Arithmetic, Physical Training), 2221 Dwight Way, Berkeley.
Grubb, Miss Olive M. (Geography, History, Civics), 2214 Ashby Ave., Berkeley.
Rufener, Miss Mary (Home Economics), 2/5 time, Hotel Sutter, Oakland.
Cahill, Miss Clara (Manual Training), 12/25 time, Madison Park Apts., Oakland.
-
- Mulligan, Miss Kathleen (6A), 1832 Vine St., Berkeley.
Carroll, Miss Anna M. (5B), 801 Sutter St., San Francisco.
Reidy, Miss Florence M. (5A), 332 Lenox Ave., Oakland.
Kottinger, Miss Rosalind (4B), 1526 Webster St., Oakland.
Carroll, Miss Mary J. (4A), 540 28th St., Oakland.
Dunne, Miss Isabel G. (3B), 1259 14th Ave., San Francisco.
Eubank, Mrs. Grace E. (3A), 1027 59th St., Oakland.
Chapman, Miss Bess (2B), 185 15th St., Oakland.
Fitzmaurice, Miss Daisy (2A), 713 15th St., Oakland.
Morrell, Miss Mabel L. (1B), 729 Jones St., San Francisco.

Andrews, Miss Rossa M. (1A), 2427 Washington St., San Francisco.

Schell, Miss Pearl (Kgtn.), 2936 Linden Ave., Berkeley.

Sturgeon, Mr. A. J. (Custodian), 1066 56th St., Oakland.

BEULAH SCHOOL.

Tompkins and Orchard Sts. (Mills College car at 13th and Broadway to Beulah Station. West about four blocks.)

Warburton, Mrs. A. B. (Sub.), (4A-1A), Route 1, Box 244, Oakland.

Morgan, Mrs. Julia (Custodian), Route 1, Box 266, Oakland.

CAMPBELL SCHOOL.

Fourth and Grove Sts. (Water St. car south at 14th and Broadway to 4th St. West about four blocks.)

Campbell, Miss Mary M., Principal (3A), 540 28th St., Oakland.

Cooper, Miss Bessy (4B-Ungraded), 1805 8th Ave., Oakland.

Knight, Miss Mary (4A, 3B), 3800 Market St., Oakland.

Scanlan, Mrs. Ida C. (2B, 2A), 2111 Webster St., Oakland.

Storrie, Miss Sallie H. (1B), 1032 East 19th St., Oakland.

Hunt, Miss Agnes C. (1A), 1222 10th Ave., Oakland.

Reedy, Mrs. Addine (Kgtn.), 528 30th St., Oakland.

Shea, Miss Marie (Sub.), (H. E.), 3/25 time, 2217 Fulton St., Berkeley.

Coughlin, Mrs. M. F. (Custodian), Campbell School, Oakland.

CLAREMONT SCHOOL.

College Ave. and Birch Court. (College Ave. car north at 14th and Broadway to Birch Court.)

Vergon, Mr. J. A., Principal, Hotel Bancroft, Berkeley.

Departmental teaching in 6B, 7th, and 8th Grades:

Darby, Miss Mary A. (Grammar, Music), 648 57th St., Oakland.

Howard, Miss Margaret (Arithmetic, Physical Training), 5586 Lawton Ave., Oakland.

Robison, Miss May E. (Reading, Composition), 397 Adams St., Oakland.

Morin, Miss Grace (Composition, Drawing), 3/5 time, 2422 Durant Ave., Berkeley.

Treadwell, Miss M. Albertina (History, Geography, Civics), 411 Perkins St., Oakland.

Waterman, Miss Edith (Home Economics), 2/5 time, 2441 Haste St., Berkeley.

Bernhard, Mr. H. H. (Manual Training), 2/5 time, 1818 Prince St., Berkeley.

Gordon, Miss Olive H. (6A), 5602 Taft Ave., Oakland.

Archibald, Miss Edith M. (6A, 5B), 604 56th St., Oakland.

Van Hagen, Miss Saylor (5A), 246 41st St., Oakland.

Bartlett, Miss Ethel (4B, 4A), 2820 Derby St., Berkeley.

Cooper, Miss Alice B. (4B, 4A), 2247 Stuart St., Berkeley.

Dixon, Miss Florence (4A), 3020 College Ave., Berkeley.

Thomas, Miss C. E. (3B), Berkeley Apts., Berkeley.

Megahan, Miss Mabel (3B, 3A), 5830 Birch Court, Oakland.

CLAREMONT SCHOOL—Cont'd

Brittan, Mrs. Alice K. (3A), 5661 Keith Ave., Oakland.
Reeve, Miss E. (2B), 2431 College Ave., Berkeley.
Taylor, Miss Eva M. (2A), 2313 Warring St., Berkeley.
Wagner, Miss Carrie D. (2A), 5464 College Ave., Oakland.
McClellan, Miss Ruth (2A, 1B), 2834 Grove St., Berkeley.
Venus, Miss Norma Lois (1A), 1904 Franklin St., Oakland.
Poole, Miss Myrtle (1A), 5216 Desmond St., Oakland.
Ruch, Miss Isabel (Kgtn.), 4820 Clark St., Oakland.
Mottram, Mr. Ernest (M. T.), 1/5 time, 355 Fair Oaks St., San Francisco.
McGary, Mr. H. H. (Custodian), 5345 Locksley Ave., Oakland.

CLAWSON SCHOOL.

Thirty-second and Magnolia Streets. (Hollis St. car going west on 14th St. to Magnolia St.)

Colton, Mr. Albert S., Principal, 4314 Gilbert St., Oakland.
Egger, Miss J. B. (8B, 8A), 440 Geary St., San Francisco.
McCarty, Mrs. Alice (H. E. 7B, 7A), 680 14th St., Oakland.
Nash, Miss Katharine F. (6B, 6A), 835 O'Farrell St., San Francisco.
Reed, Miss Carolyn E. (5B), 842 19th St., Oakland.
McGraw, Miss R. Geraldine (5A), 929 Chestnut St., Oakland.
Feibush, Miss Bertha (4B), 557 33d St., Oakland.
Keilbar, Miss Ida M. (4A), 964 Broadway, San Francisco.
Wales, Miss H. Margaret (3B), 2093 Harrison St., Oakland.
Montgomery, Miss Elizabeth S. (3A), 540 28th St., Oakland.
Marcus, Miss Elizabeth (2B), 482 40th St., Oakland.
Robins, Miss H. A. (2A), 2031 Bancroft Way, Berkeley.
Burgess, Miss Marie L. (2A), 366 Jayne Ave., Oakland.
Cook, Miss De Esta (1B), 5631 Shafter Ave., Oakland.
Chambers, Miss Martha (1B, 1A), 1200 Taylor St., San Francisco.
Smyth, Miss Flora R. (1A), 607 Apgar St., Oakland.
Hamilton, Miss Ruth (Kgtn.), 2420 Ellsworth St., Berkeley.
Horridge, Mr. F. (M. T.), 8/25 time, 1821 Berkeley Way, Berkeley.
Eakin, Mr. L. E. (Custodian), 2026 E. 16th St., Oakland.

CLEVELAND SCHOOL.

Cleveland and Athol Aves. (Park Blvd. car at 13th and Broadway to Cleveland Ave. West about three blocks.)

Morris, Miss K. C., Principal (2A, 1B, 1A), 544 28th St., Oakland.
Ferrell, Miss Sarah (6B, 6A, 5B), 1515 Webster St., Oakland.
Dunn, Miss Grace (5A, 4B, 4A), 1515 Webster St., Oakland.
Rawson, Mrs. C. F. (3B, 3A, 2B), 693 35th St., Oakland.
Mack, Miss Lucy (Kgtn.), 3/7 time, 525 E. 21st St., Oakland.
Cahill, Miss Clara (M. T.), 2/25 time, Madison Park Apts., Oakland.

Manual Training is given in the McChesney School.

Thompson, Miss Jessie (Orchestra), 2/25 time, 2140 27th Ave., Oakland.
Hallowell, Mr. R. J. (Custodian), 6609 Whitney St., Oakland.

COLE SCHOOL

Tenth and Union Sts. (12th St. car west at 12th and Broadway to Union St. South about one block.)

Meads, Mr. S. P., Principal, 2510 College Ave., Berkeley.

Departmental teaching in 7th and 8th grades:

Stewart, Miss Alice (History, Geography, Civics), 148 10th St., Oakland.

Rector, Miss Mary E. (English), 3021 Telegraph Ave., Berkeley.

Donnelly, Miss Mary G. (Arithmetic), 219 Highland Ave., Piedmont.

Thompson, Miss Ettie L. (English), 463 28th St., Oakland.

Bradley, Miss Beth (Sub.), (Music), 3/5 time, 2958 Telegraph Ave., Oakland.

McCarty, Miss Maude (Home Economics), 2/5 time, 112 11th St., Oakland.

Wood, Mr. Beverly W. (Manual Training), 3/5 time, 3019 Peralta Ave., Oakland.

Boyle, Miss Jennie H. G. (6B), 314 Hobart St., Oakland.

Givens, Miss Helen M. (6A), 476 29th St., Oakland.

Kelsey, Mrs. Eula L. (5B), 1030 Market St., Oakland.

McDonald, Miss Margaret (5A), 1450 Alice St., Oakland.

Wildes, Miss Maude (4B, 4A), 4002 Ardley Ave., Oakland.

Crawford, Miss May C. (4A), 2234 Seminary Ave., Oakland.

Fernald, Miss Gay (3B), 650 Post St., San Francisco.

Baker, Miss Martha D. (3A), 331 34th St., Oakland.

Morison, Miss Isabella F. (2B), 261 Lester Ave., Oakland.

McClure, Miss Martha R. (2A), 2230 Fulton St., Berkeley.

Pullman, Miss M. S. (2A), 2520 9th Ave., Oakland.

Trask, Miss Alice M. (1B, 1A), 308 Hobart St., Oakland.

Russell, Miss Ada (1A), 1747 Walnut St., Berkeley.

Stahle, Mr. Walter (Custodian), 5339 Locksley Ave., Oakland.

DEWEY SCHOOL.

Thirty-seventh Ave. and E. 12th St. (E. 14th St. car at 13th and Broadway to 37th Ave. One block south.)

Dyer, Mr. E. F., Principal, 2119 Kittredge St., Berkeley.

Nelson, Miss Lena M. (8B, 8A), 1421 Market St., Oakland.

McGrath, Miss Sarah C. (7B, 7A), 4110 Agua Vista St., Oakland.

Farrell, Miss Elizabeth (6B, 6A), 24th and Valdez Sts., Oakland.

Millzner, Mrs. Marie (5B, 5A), 3002 E. 17th St., Oakland.

Goehringer, Miss Olga (4B), 429 Orange St., Oakland.

Bromley, Miss Marion (4A, 3B), 435 28th St., Oakland.

Smith, Mrs. Verna T. (Sub.), (3A, 2B), 549 35th St., Oakland.

Cornell, Mrs. Elizabeth (Sub.), (2A, 1B), 2015 13th Ave., Oakland.

Clark, Miss Augustina M. (1A), 1817 Alice St., Oakland.

Work, Miss Gertrude (Kgtn.), 4617 17th St., San Francisco.

Shea, Miss Marie (Sub.), (H. E.), 1/5 time, 2217 Fulton St., Berkeley.

Nevison, Mr. Beverly (M. T.), 8/25 time, 656 60th St., Oakland.

Eckler, Mr. A. C. (Custodian), 2515 E. 27th St., Oakland.

DURANT SCHOOL.

Twenty-eighth and West Sts. (Grove St. car north at 14th and Washington Sts. to 28th St. About one block west.)

Dunbar, Mr. S. G. S., Principal, 395 Hawthorne Ave., Oakland.

Intermediate Department

Cooke, Miss A. E. H. (History, Civics, Geography), 532 25th St., Oakland.

Poore, Miss Shirley (Drawing, Arithmetic, Spelling), 1911 Vine St., Berkeley.

Greenman, Mrs. E. E. (Literature, Arithmetic), 1431 6th Ave., Oakland.

Parker, Mrs. E. McF. (English), 1202 Wellington Ave., Oakland.

Sutherland, Miss M. C. (English, Arithmetic), 2605 Ashby Ave., Berkeley.

Sorrenson, Miss H. B. (History, Geography), 464 29th St., Oakland.

Gregg, Miss G. D. (Arithmetic), 3505 Telegraph Ave., Oakland.

Marshall, Miss Pauline (Composition, Grammar), 3505 Telegraph Ave., Oakland.

Gibbs, Miss Ethel L. (Music), 2417 Telegraph Ave., Oakland.

Watt, Miss J. C. (Home Economics), 2927 Florence St., Berkeley.

Nason, Mr. Byron G. (Manual Training), 1815 Pleasant Valley Ave., Oakland.

Struckman, Mrs. F. I. (Ungraded), 1521 Castro St., Oakland.

Rich, Mrs. K. C. (4B), 435 Staten Ave., Oakland.

Melquiond, Mrs. Rellie (4B, 4A French), 1807 Russell St., Berkeley.

Metzger, Miss E. E. (4A), 3505 Telegraph Ave., Oakland.

Floyd, Miss S. G. (3B), 1556 Broadway, Oakland.

Mills, Miss B. (3A), 1835 8th Ave., Oakland.

Elftman, Miss J. (Sub.), (3A), 1615 83d Ave., Oakland.

O'Rourke, Miss R. A. (2B), 116 Lake St., Oakland.

Foster Miss K. B. (2A) 2717 Hillegass Ave., Berkeley.

Story, Miss Mary (2A), 1504 Chestnut St., Oakland.

Maddocks, Mrs. C. E. (1B), 642 36th St., Oakland.

O'Neill, Miss F. (1A), 2106 38th Ave., Oakland.

Maggard, Miss Madge (1A), 540 28th St., Oakland.

McFarland, Miss Winnie (Kgtn.), 1202 Wellington Ave., Oakland.

Campbell, Mr. Ed. M. A. (Custodian), 688 28th St., Oakland.

ELMHURST SCHOOL.

Cherry St. and 98th Ave. (E. 14th St. car marked "Elmhurst" east at 13th and Broadway to 98th Ave. Three blocks north.)

Crane, Mr. Clarence B., Principal, 763 Estudillo Ave., San Leandro.

Departmental teaching in 6B, 7th, and 8th grades:

Watkins, Miss Ethelinda S. (Music, English), 2102 E. 17th St., Oakland.

Gilfillan, Miss M. Jessie (Arithmetic), Hotel Harrison, Oakland.

Bertola, Miss Annie (English), 1728 9th St., Alameda.

Morin, Miss Grace (Drawing), 2/5 time, 2422 Durant Ave., Berkeley.
Hensley, Mr. George L. (History, Geography), Y. M. C. A., Oakland.
Buckley, Miss Elizabeth (Home Economics), 3/5 time, 563 E. 14th St., San Leandro.
Gillies, Mr. James (Manual Training), 17/25 time, 1448 Benton St., Alameda.

Dewing, Miss Sarah J. (6A), 1741 10th Ave., Oakland.
Bowman, Miss Frances (5B), 1557 Webster St., Oakland.
Sutton, Miss Helen (5A), Hotel Sutter, Oakland.
Fratton, Mrs. Sue L. (5A), 204 Wayne Ave., Oakland.
Stansbury, Mrs. Ethel D. (4B), 1525 Oak St., Oakland.
Curtess, Miss Mary J. (3B), Hotel Sutter, Oakland.
Ardley, Miss Marcia (4A), 950 Pine St., San Francisco.
Weymouth, Miss Myrta W. (3B, 3A), 1360 Broadway, Alameda.
Evans, Miss Audrey (3B, 3A), 7830 Alder St., Oakland.
Brown, Miss Isabel L. (2B, 2A), 2621 E. 16th St., Oakland.
Loring, Miss Veronica (2B, 2A), Del Mar Inn, Oakland.
Drewry, Miss Ida (2B, 1B), 448 Joaquin St., San Leandro.
Drury, Miss Louise (1A), 1515 Webster St., Oakland.
Mark, Miss Salome (1A), 931 E. 24th St., Oakland.
Cockerton, Miss Emily (Kgtn.), 1061 Walker Ave., Oakland.
Maxwell, Mr. E. G. (Custodian), 9532 Plymouth St., Oakland.

EMERSON SCHOOL.

Forty-ninth St. and Shafter Ave. (College Ave. car north at 14th and Broadway to 49th St. West about two blocks.)

Wheeler, Mr. R. S., Principal, 599 Scenic Ave., Piedmont.

Departmental teaching in 6B, 7th, and 8th grades:

Carden, Miss Georgiana (Arithmetic), Berkeley Inn, Berkeley.
King, Miss Anna V. (Geography, History), Berkshire Apts., Berkeley.
Stedman, Miss Blanche (Music, Drawing), 480 Hawthorne Ave., Oakland.
Wilson, Miss Maud E. (English), 1022 Filbert St., Oakland.
Bruce, Miss Barbara (English), 116 Divisadero St., San Francisco.
Garrett, Mr. J. H. (Manual Training), 3/5 time, 2232 E. 22d St., Oakland.
Kilgo, Miss Alice (Home Economics), 2/5 time, 128 Laguna St., San Francisco.

Rider, Miss Irma (6A), 3710 Leighton St., Oakland.
Disbrow, Miss E. Mercedes (6A, 5B), 2328 Roosevelt Ave., Berkeley.
Hoag, Miss Attai (5B), 1076 10th St., Oakland.
Burton, Miss Helen (5A), 391 Adams St., Oakland.
Beeler, Mrs. Lulu G. (5A, 4B), 4294 Montgomery St., Oakland.
Ruhl, Miss Elsie C. (4B, 4A), 5470 Manila Ave., Oakland.
Pratt, Miss Hollis (4A, 3B), 5476 Kales Ave., Oakland.

EMERSON SCHOOL—Cont'd

Riley, Miss Mary E. (4A, 3B), 4130 San Pablo Ave., Oakland.
Johnson, Miss Selma L. (3B), 144 Grand Ave., Oakland.
Hilling, Miss Adelaide G. (3A), 1530 Harrison St., Oakland.
Cassiday, Miss M. B. (3A), 1515 Webster St., Oakland.
McConnell, Miss Ethel (2B), 2719 Woolsey St., Berkeley.
De La Mater, Miss Lou (2A), 466 Santa Clara Ave., Oakland.
Craig, Miss Elsie E. (2A, 1B), 2323 Ward St., Berkeley.
Sullivan, Miss M. A. (1B), 609 36th St., Oakland.
Barnes, Miss May (1A), 5362 Miles Ave., Oakland.
Harrington, Miss Theresa F. (1A), 922 Adeline St., Oakland.
Mason, Miss Mary I. (Kgtn.), Hotel Carlton, Berkeley.
Humphrey, Mr. Albert M. (Band, Orchestra), 2/5 time, 681 17th St., Oakland.
Sohler, Mr. Paul (Custodian), 526 44th St., Oakland.

FRANKLIN SCHOOL.

Ninth Ave. and E. 16th St. (55th Ave. car east at 12th and Broadway to 9th Ave.)

Edgar, Mr. George A., Principal, 234 Broadmoor St., San Leandro.
Gallagher, Miss Eunice (6B), 1131 Oak St., Oakland.
Findley, Miss Nell (6B), 429 Bellevue Ave., Oakland.
Burrows, Miss C. B. (6A), Peralta Apts., Oakland.
Cromwell, Mrs. Bertha (6A, 4B), 1117 E. 28th St., Oakland.
Graham, Mrs. Agnes (5B), 1433 34th Ave., Oakland.
Maxwell, Miss Lucy (5A), 634 E. 17th St., Oakland.
Kane, Miss M. A. (4B), 1150 E. 16th St., Oakland.
Larkin, Mrs. May E. (4B), Peralta Apts., Oakland.
Flaherty, Miss Julia G. (4A), 1125 Center St., Oakland.
Gardner, Miss Edna L. (4A, 3B), 1314 8th St., Oakland.
Smith, Mrs. Mabel (3B), La Grande Apts., Oakland.
Atterbury, Mrs. Ida (3A), 452 Newton Ave., Oakland.
Lisbon, Miss Louise (3A), 616 25th St., Oakland.
Hayes, Miss Annie (2B), 1629 Grove St., Oakland.
Hankenson, Miss Irene (2A), 817 E. 16th St., Oakland.
Ayer, Miss Charlotte (2A, 1B), 579 Mira Vista Ave., Oakland.
Davis, Miss Alice (1B, 1A), 239 E. 16th St., Oakland.
Ney, Miss Clara (1A), 704 13th St., Oakland.
Breese, Miss Julia (1A), 129 Sunnyside Ave., Piedmont.
Marshall, Miss M. E. (Kgtn.), 937 Bay View Ave., Oakland.
Hornberger, Mr. R. C. (Sub.), (M. T.), 1/5 time, 2120 41st Ave., Oakland.
Thompson, Miss Jessie (Band, Orchestra), 3/25 time, 2140 27th Ave., Oakland.
Hagerman, Mr. Samuel J. (Custodian), 1024 39th Ave., Oakland.

FRICK SCHOOL.

Foothill Blvd. and 62nd Ave. (55th Ave. car east at 12th and Broadway to end of line. Four blocks to 62nd ave.)

Poore, Miss Margaret I., Principal (6B, 6A, 5B), 5320 Trask Ave., Oakland.
Hubbard, Miss M. Ellen (5A, 4B, 4A, 3B), 2275 E. 15th St., Oakland.

McCullough, Mrs. Marjorie D. (Sub.), 2411 Oregon St., Berkeley.
Hall, Miss Myrtle G. (3A, 2B, 2A), 933 Kingston Ave., Oakland.
Myers, Miss Jane E. (1B, 1A), Peralta Apts., Oakland.
Hartung, Miss Mary (H. E.), 2/25 time, 1482 Alice St., Oakland.
Hunt, Mr. George (Sub.), (M. T.), 2/25 time, 384 35th St., Oakland.

Manual Training is given in the Lockwood School.
Alonzo, Mr. Jose (Custodian), 62nd Ave. and Foothill Blvd., Oakland.

FRUITVALE SCHOOL.

Boston Ave. and School St. (Dimond car at 13th and Broadway to Boston Ave. South about three blocks.)

Swasey, Miss Alice J., Principal, 2534 10th Ave., Oakland.
Friedrich, Miss Mary (8B, 8A), 107 13th St., Oakland.
Sult, Mrs. Jessie (7B H. E.), 3400 Dimond Ave., Oakland.
Coutolenc, Miss Ida (7A, 6B), 1109 Oak St., Oakland.
Griffes, Miss Mabel (6A, 5B), 2607 12th Ave., Oakland.
Huck, Miss Ida (5A, 4B), 2425 Orange Ave., Oakland.
Mathews, Miss Josephine (3B, 3A), 300 Baker St., San Francisco.
Rahn, Mrs. Elsie (4B, 4A), 4113 Lyon Ave., Oakland.
Duhem, Mrs. Augusta (3A, 2B), 1231 High St., Oakland.
Bridges, Mrs. Harriett (2A, 1B), 3003 Nicol Ave., Oakland.
Borgeson, Miss Signeld (1A), 905 Willow St., Oakland.
Kenagy, Miss Nina (Kgtn.), 736 Lakeshore Blvd., Oakland.
Horridge, Mr. Frederick (M. T.), 9/25 time, 1821 Berkeley Way, Berkeley.
Hunt, Mr. George J. (Sub.), (M. T.), 3/50 time, 384 35th St., Oakland.

Bowker, Mr. W. C. (Custodian), 1030 Cotton St., Oakland.

GARFIELD SCHOOL.

Twenty-third Ave. and E. 16th St. (55th Ave. car east at 12th and Broadway to 23rd Ave.)

Hammel, Mr. J. C., Principal, 842 E. 19th St., Oakland.

Intermediate Department

Jones, Miss Bessie E. (History, Geography), Marboyd Apts., Oakland.
Bagot, Miss Vera I. (Arithmetic, Physical Training), 1205 Oxford St., Berkeley.
McRoy, Mrs. Lois Y. (English), 3031 Lee St., Berkeley.
Lanyon, Mrs. Beulah E. (Music, English), 1310 Chestnut St., Oakland.
McCarty, Miss Maude (Home Economics), 3/5 time, 112 11th St., Oakland.
Bassett, Miss Dorothy (Sub.), (Drawing), 2/5 time, 2031 Berryman St., Berkeley.
Hornberger, Mr. R. C. (Sub.), (Manual Training), 4/5 time, 2120 41st Ave., Oakland.

Flaherty, Mrs. Belle (6A), 2834 35th Ave., Oakland.
Collister, Miss Margery (6A, 5B), 3616 Kingsley St., Oakland.
Hinkson, Miss Hattie (5B), 1144 E. 16th St., Oakland.

GARFIELD SCHOOL—Cont'd

- Gill, Miss A. W. (5A), 558 Joaquin Ave., San Leandro.
Eby, Miss S. A. (5A, 4B), 221 Cambridge Ave., San Leandro.
Wilson, Miss Susie B. (4A), Garfield Apts., Oakland.
Symons, Miss Augusta K. (4B), 654 13th Ave., Oakland.
Garrison, Miss Virginia (4A, 3B, Spanish), 4342 Evans Ave.,
Oakland.
Phillips, Miss L. U. (3B), 365 Breed Ave., San Leandro.
Edwards, Miss Carlie Anne (3A), Hotel Sutter, Oakland.
Lawless, Mrs. Margaret (3A, 2B), 3945 Greenwood Ave., Oakland.
Price, Miss Frances C. (2B, 2A), 185 15th St., Oakland.
Bradley, Miss Margaret (2A), 1616 4th Ave., Oakland.
Storrie, Miss J. K. (1B), 1032 E. 19th St., Oakland.
Sorgenfrey, Miss Grace E. (1B), 1327 Leavenworth St., San
Francisco.
Campbell, Miss Helen G. (1A), 2488 Peralta Ave., Oakland.
Schenkofsky, Mrs. May (1A), 1925 23d Ave., Oakland.
Best, Miss Miriam (Kgtn.), 1944 Franklin St., Oakland.
Brunjes, Mr. H. P. (Custodian), 2251 E. 17th St., Oakland.

GRANT SCHOOL.

Twenty-ninth and Broadway. (College Ave. car north at 14th and Broad-
way to 29th St.)

Petray, Mr. H. C., Principal, 452 Walsworth Ave., Oakland.

Intermediate Department

- Stewart, Miss Hannah C. (History, Geography), 148 10th St.,
Oakland.
Devine, Miss Josephine (English), Hotel St. Mark, Oakland.
Cromwell, Miss Myrtle G. (English, History, Geography), 1117
E. 28th St., Oakland.
Danielwitz, Miss Emma (Arithmetic, Physical Training), 2201
Harrison St., Oakland.
Davis, Miss Harriet E. (Drawing), 1131 Oak St., Oakland.
Worley, Miss Elizabeth (History, English, Geography, Spanish),
462 36th St., Oakland.
Wackler, Miss Giralda E. (Home Economics), 59 Montell St.,
Oakland.
Smith, Miss Jean E. (Arithmetic, Physical Training), 61 Santa
Clara Ave., Oakland.
Miller, Miss Mary (English, History, Geography, Spanish), 1621
Hearst Ave., Berkeley.
Strawbridge, Miss Jessica (Music), 936 12th St., Oakland.
Lyle, Mr. John (Manual Training), 1815 Pleasant Valley Ave.,
Oakland.
Bangham, Miss Adalyn O. (5B), 5673 Keith Ave., Oakland.
Swain, Miss Elma (5A), 429 Bellevue Ave., Oakland.
Menihan, Miss M. J. (5A), 160 Lake St., Oakland.
Bennetts, Miss A. O. (4B), 464 34th St., Oakland.
Garrison, Miss Georgia L. (4A, Spanish), 4342 Evans Ave., Oak-
land.
Lamson, Miss Angenette (3B), 166 Santa Clara Ave., Oakland.
O'Neill, Miss Florence M. (3A), Key Route Inn, Oakland.

Anderson, Miss Mildred (3A, 2B), 1515 Webster St., Oakland.
Simms, Mrs. Mae H. (2B, 2A), 300 E. 19th St., Oakland.
Salisbury, Miss Nel (2A, 1B), Hotel Claremont, Berkeley.
Spreckels, Miss Agnes (1B, 1A), 1807 Lincoln Ave., Alameda.
Ellis, Miss Mary C. (1A), 3301 Telegraph Ave., Oakland.
Dade, Mr. Walter E. (Custodian), 537 34th St., Oakland.

HARRISON SCHOOL.

Fourth and Harrison Sts. (Water St. car south at 14th and Broadway to 4th St. About three blocks east.)

Vorheis, Mr. C. R., Principal (6B, 6A, 5A), 620 29th St., Oakland.
Rhodes, Miss Mary L. (4B, 4A, 3B), 1629 Grove St., Oakland.
Smith, Miss Constance (3A, 2B, 2A), 1918 Rosedale Ave., Oakland.
Herd, Miss Gertrude C. (1B, 1A), 417 36th St., Oakland.
Scupham, Miss Isabelle (Kgtn.), 303 Perry St., Oakland.
Hartung, Miss Mary (H. E.), 2/25 time, 1482 Alice St., Oakland.
Daly, Mrs. J (Custodian), 414 Harrison St., Oakland.

HAWTHORNE SCHOOL.

Fruitvale Ave. and Tallant St. (E. 14th St. car east at 13th and Broadway, transfer to Fruitvale Ave., north.)

Spencer, Mr. W. D., Principal, 238 Castro St., Hayward.
Departmental teaching in 6B, 7th, and 8th grades:
Marchant, Miss Maud (English), 449 59th St., Oakland.
Rosseter, Mrs. F. S. (Music, English), 1619 28th Ave., Oakland.
Miller, Miss Jessie W. (Arithmetic, Physical Training), 4316 Everett Ave., Oakland.
Peterson, Miss Laura A. (Geography, History), 1830 7th Ave., Oakland.
Cunningham, Miss Olivia (Home Economics), 3/5 time, 1109 Oak St., Oakland.
Mottram, Mr. E. W. (Manual Training), 18/25 time, 355 Fair Oaks St., San Francisco.
Clarke, Miss Katharine B. (Drawing), 2/5 time, 6538 Dana St., Oakland.

Morgan, Miss Edith T. (6A, 5B), 1600 California St., San Francisco.

Madden, Miss Harriet A. (5A), 4609 Dolores Ave., Oakland.
Wagner, Miss Nettie E. (4B, 4A), Hotel Harrison, Oakland.
Newman, Miss Agnes E. (3B), 1276 6th Ave., San Francisco.
Burckhalter, Mrs. Frances J. (3A), 1421 Market St., Oakland.
Rahm, Miss Marion (2B, 2A), 753 8th St., Oakland.
Crowley, Miss Nell E. (1B), 1224 30th Ave., Oakland.
Werner, Mrs. Mary Eckles (1A), 185 15th St., Oakland.
Williams, Miss Zona (Open Air), 1564 Le Roy Ave., Berkeley.
Gill, Miss Charlotte (Sub.), (Kgtn.), 2436 Channing Way, Berkeley.

Rhodes, Mr. H. H. (Custodian), 2038 34th Ave., Oakland.

HIGHLAND SCHOOL.

Eighty-fifth Ave. and A St. (E. 14th St. car marked "Elmhurst" at 13th and Broadway to 85th Ave. About one block south.)

HIGHLAND SCHOOL—Cont'd

- Wilson, Mrs. E. A.**, Principal, 831 Oakland Ave., Oakland.
Polley, Mr. E. M. (8B, 8A, 7B), 185 15th St., Oakland.
Gunn, Miss Ann (7A, 6B), 916 E. 21st St., Oakland.
Noll, Miss Lela (6B, 6A), 525 Oakland Ave., Oakland.
Rowe, Miss Irene (6A, 5B), 5716 Genoa St., Oakland.
Vasche, Miss Gertrude (5A), 4025 West St., Oakland.
McCahill, Mrs. Mary (4B), 663 11th St., Oakland.
Jones, Miss Vera (4A, 3B), 464 34th St., Oakland.
Gallagher, Miss Evelyn (3B, 3A), 1233 Chestnut St., Oakland.
Kinsey, Mrs. Alice E. (Sub.), (3A, 2B), 69 7th St., Oakland.
Whipple, Miss Izobel (2B), 340 E. 16th St., Oakland.
Gartner, Miss Marion G. (2A), 2817 Filbert St., Oakland.
Comerford, Miss Alice (1B), 1200 Taylor St., San Francisco.
Tredway, Mrs. Gertrude (1A), 5112 Genoa St., Oakland.
McCorkle, Mrs. Lulu B. (1A), 680 14th St., Oakland.
Woodbridge, Miss Carolyn (Kgtn.), 116 Lake St., Oakland.
Kilgo, Miss Alice (H. E.), 1/5 time, 128 Laguna St., San Francisco.
Wood, Mr. Beverly W. (M. T.), 8/25 time, 3019 Peralta Ave., Oakland.
Hansen, Mr. T S. (Custodian), 1473 74th Ave., Oakland.

INTERMEDIATE SCHOOL.

Twelfth Ave. and E. 19th St. (Dimond car at 13th and Broadway to 19th.)

- Martin, Mr. Irvin D.**, Principal, 53 Fairmount Ave., Oakland.
Clark, Mr. G. Fred (Arithmetic, Civics, Hygiene, History), 664 Brooklyn Ave., Oakland.
Eby, Miss Frances (Drawing), 221 Cambridge Ave., San Leandro.
Graham, Miss Alice (Arithmetic, History, English), 542 Jones St., Oakland.
Houston, Miss E. L. (Civics, Hygiene, History, English), 1117 Lakeshore Ave., Oakland.
Keeler, Miss M. N. (Arithmetic, English, Geography, History), 3131 Grove St., Oakland.
Logan, Miss Anna (Home Economics), Concord.
Maguire, Miss M. C. (English, Geography, History), Park View Apts., Oakland.
Mitchell, Miss F. E. (Arithmetic, English, Latin), 1923 Harrison St., Oakland.
Monroe, Miss M. E. (Arithmetic, English, History, Hygiene), Madison Park Apts., Oakland.
Ogden, Miss E. L. (Arithmetic, Geography), 529 29th St., Oakland.
Ogier, Miss Frances (Home Economics), 252 Wayne Ave., Oakland.
Parker, Mrs. Ida G. (English, German), 829 E. 19th St., Oakland.
Potter, Miss Z. W. (Music), 1543 Harrison St., Oakland.
Roy, Mr. A. B. (Manual Training, Mechanical Drawing), 5424 Wadean Place, Oakland.
Ruch, Miss L. A. (English, Latin), 4820 Clark St., Oakland.

- Sellander, Miss A. (English, German, Geography, History), 918 E. 20th St., Oakland.
- Spangler, Miss Lulu (Arithmetic, Geography, Typing), 332 Lenox Ave., Oakland.
- Thompson, Miss Jessie R. (Orchestra), 12/25 time, 2140 27th Ave., Oakland.
- Vanderbilt, Mr. A. (Manual Training, Mechanical Drawing), 2439 11th Ave., Oakland.
- Mock, Mr. G. W., (Custodian), 2410 14th Ave., Oakland.

JEFFERSON SCHOOL.

Thirty-ninth Ave. and Carrington St. (E. 14th St. car marked "38th Ave." at 12th and Broadway to Carrington St. One block east.)

- Sherman, Miss Elisabeth M.**, Principal, 957 Linden St., Oakland.
Departmental teaching in 6B, 7th, and 8th grades:
- Lages, Miss Dora (English, Drawing), 1109 Oak St., Oakland.
- Orr, Mrs. H. K. (History, Geography, Civics, Hygiene), 4115 Santa Rita Ave., Oakland.
- Clough, Miss Cora I. (English), 1445 23d Ave., Oakland.
- Yarrow, Mr. Sidney (Sub.), (Arithmetic, Physical Training), University Y. M. C. A., Berkeley.
- Calder, Miss Jessie (Manual Training), 17/25 time, 5304 Bryant Ave., Oakland.
- Waterman, Miss Edith (Home Economics), 3/5 time, Sequoia Apts., Berkeley.
- Bradley, Miss Beth (Sub.), (Music), 2/5 time, 2958 Telegraph Ave., Oakland.

- Gallagher, Miss S. E. (6A), 2425 Grove St., Oakland.
- Bleuel, Miss Davida (5B), 322 Athol Ave., Oakland.
- Murtha, Miss Winifred (5A), 240 Grand Ave., Oakland.
- Messinger, Miss Belle (4B, 4A), 445 48th St., Oakland.
- Johnson, Miss Hattie (4A, 3B), 2115 38th Ave., Oakland.
- Perdue, Miss Elizabeth (3B, 3A), 258 Cambridge Ave., San Leandro.
- Dickson, Miss Florence (3A), 1461 Alice St., Oakland.
- Krause, Miss Florence (2B), 3736 Randolph Ave., Oakland.
- Powell, Miss Emma (2A), 1926 11th Ave., Oakland.
- Horn, Miss Ruby (1B, 1A), 4110 Agua Vista Ave., Oakland.
- Sykes, Miss Josephine (1A), 1732 Franklin St., Oakland.
- Jobe, Miss Viola (1A), 2122 Vicksburg Ave., Oakland.
- Teich, Miss C. Esse (Kgtm.), 2930 Harrison St., Oakland.
- Borden, Mr. Ralph (Custodian), 713 15th St., Oakland.

LAFAYETTE SCHOOL

Seventeenth and West Sts. (W. 16th St. car at 14th St. and San Pablo Ave. to West St. One block north.)

- Gulick, Mr. C. F.**, Principal, 589 Sycamore St., Oakland.
- McGuire, Miss Margaret (7A, 6B), 1556 Broadway, Oakland.
- Driscoll, Miss Katherine (6B), 1461 Alice St., Oakland.
- Madden, Miss Maud (6A), 4609 Dolores Ave., Oakland.
- Gelinas, Miss Emma J. (6A, 5B), 395 Adams St., Oakland.
- Hennings, Miss A. C. (5B), 255 Euclid Ave., Oakland.

LAFAYETTE SCHOOL—Cont'd

- Jones, Miss H. M. (5B, 5A), 563 Mira Vista Ave., Oakland.
Hoagland, Miss Clara (5A), 1812 Filbert St., Oakland.
Gates, Miss Myra A (5A, 4B), 2440 Van Ness Ave., San Francisco.
Riddle, Miss M. M. (4B), 480 34th St., Oakland.
Morris, Miss M. E. (4A), 756 13th St., Oakland.
Hall, Miss Estelle V. (4A), 1125 Post St., San Francisco.
Moore, Miss F. Leonore (Ungraded), 540 28th St., Oakland.
Caig, Miss S. E. (3B), 505 Santa Ray Ave., Oakland.
Miller, Miss Sallie C. (3B, 3A), 606 Vernon St., Oakland.
Fulton, Miss E. A. (3B, 3A), 856 18th St., Oakland.
Stoddard, Miss M. (3A), 1214 Leavenworth St., San Francisco.
Lewek, Miss Lucille (Sub.), (2B), 2133 Webster St., Oakland.
Wright, Miss Nellie H. (2B, 2A), 3005 West St., Oakland.
Crosby, Miss E. S. (2A), 1331 Castro St., Oakland.
Blythe, Miss M. R. (2A), 1426 West St., Oakland.
Muscio, Miss Lillian (1B), 1011 Bush St., San Francisco.
Rogers, Miss A. B. (1A), 1738 10th St., Oakland.
Gross, Miss E. V. (1A), 262 Grand Ave., Oakland.
Elmore, Miss Lillian (Kgtn.), 1530 Harrison St., Oakland.
Gompertz, Miss A. (Deaf Class), 2405 Bowditch St., Berkeley.
MacIntosh, Mr. Richard (M. T.), 3/25 time, 4977 Desmond St., Oakland.
Hartung, Miss Mary (H. E.), 3/25 time, 1482 Alice St., Oakland.
Yocum, Mr. J. E. (Sub.), (M. T.), 7/25 time, 2232 E. 22d St., Oakland.
Humphrey, Mr. Albert (Band and Orchestra), 1/5 time, 681 17th St., Oakland.
Edwards, Mr. E. J. (Custodian), 873 18th St., Oakland.

LAKEVIEW SCHOOL.

Perry and Van Buren Sts. (Grand Ave. car east at 14th and Broadway to Perry St.)

Ricciardi, Mr. Nicholas, Principal, 2054 38th Ave., Oakland.

Intermediate Department

- Lamb, Miss Esther (Arithmetic, History, Geography, Hygiene), 245 Moss Ave., Oakland.
Cotter, Miss M. Elsie (Drawing, English), 290 Park View Terrace, Oakland.
Wendell, Miss Matilda (History, Geography, Civics, English, French), 540 28th St., Oakland.
Alexander, Miss Anne (English, Literature), 515 Bellevue Ave., Oakland.
McGrath, Mrs. Mary R. (English, Literature, Arithmetic), 2133 Webster St., Oakland.
Brady, Miss Mattie (English, Hygiene, Nature Study), 28 Monte Vista Ave., Oakland.
Nugent, Miss Effie D. (History, Geography), 1109 Oak St., Oakland.
Allen, Miss Marie F. (Music, Literature, Spelling, Nature Study, Hygiene, Physical Training), 542 Jones St., Oakland.
Farno, Miss Alice J. (Arithmetic, Drawing), 420 Oakland Ave., Oakland.

Wackler, Miss Katharine (Home Economics), 59 Montell St., Oakland.

Kershner, Mr. L. M. (Manual Training), 417 63rd St., Oakland.

Taylor, Miss Mildred M. (4B), 2313 Warring St., Berkeley.

Fluker, Miss Grace W. (4A), 1109 Oak St., Oakland.

Branch, Miss Edna (3B, 3A), 2478 Prince St., Berkeley.

Neylan, Miss Ellen (3A), 492 Wickson Ave., Oakland.

Van Vleet, Miss Gladys (2B), 181 Vernon Terrace, Oakland.

McGillivray, Miss Jennie Dee (2B, 2A), Peralta Apts., Oakland.

Naylor, Miss Ella G. (1B, 1A), 53 Domingo Ave., Berkeley.

Ayer, Miss Ethel C. (1A), Peralta Apts., Oakland.

Humphrey, Mr. Albert (Band and Orchestra), 1/5 time, 681 17th St., Oakland.

Rowe, Mr. D. H. (Custodian), 1214 E. 23d St., Oakland.

LAUREL SCHOOL.

Brown Ave. and Congress St. (E. 14th St. car marked "38th Ave." east at 12th and Broadway to end of line. Two blocks north.)

Arlett, Miss Elizabeth, Principal (6B, 6A, 5B), 24 Linda Ave., Oakland.

Coulter, Miss Hilda (5A, 4B, 4A), 2103 88th Ave., Oakland.

Williams, Miss Frances (3B, 3A, 2B, 2A), 515 Wesley Ave., Oakland.

Johnson, Miss Henrietta (1B, 1A), 731 Henry St., Oakland.

Schell, Miss Josephine (Kgtn.), 2936 Linden St., Berkeley.

Cunningham, Miss Olivia (H. E.), 2/25 time, 1109 Oak St., Oakland.

Hunt, Mr. George (Sub.), (M. T.), 2/25 time, 384 35th St., Oakland.

Manual Training is given in the Allendale School.

Cougley, Mr. William (Custodian), 3811 Brown Ave., Oakland.

LAZEAR SCHOOL.

Twenty-ninth Ave. and Elmwood St. (E. 14th St. car at 13th and Broadway to 29th Ave. South about four blocks.)

Kane, Miss Emma G., Principal, 1150 E. 16th St., Oakland.

Sinnott, Miss Annie E. (6B, 6A), 3824 19th St., San Francisco.

Strachan, Miss Louise (5B, 5A), 2701 Santa Clara Ave., Alameda.

Freeman, Mrs. G. E. (5A, 4B), 2884 Chapman St., Oakland.

Perdue, Miss Eva (4A), 258 Cambridge Ave., San Leandro.

McNary, Miss Miriam (3B), 990 Geary St., San Francisco.

MacKenna, Miss Mida L. (3A), 1515 Alice St., Oakland.

Campbell, Miss Gladys (3A, 2B), 466 37th St., Oakland.

Moon, Miss Pruda W. (2B, 2A), 3880 Brighton Ave., Oakland.

McDermott, Miss Lucy (2A), 3880 Brighton Ave., Oakland.

Willson, Miss Irene (1B), 1515 Webster St., Oakland.

Rinkel, Miss Amanda (1A), 4820 Webster St., Oakland.

Madden, Miss Helen (Kgtn.), 4609 Dolores Ave., Oakland.

Hartung, Miss Mary (H. E.), 2/25 time, 1482 Alice St., Oakland.

Shea, Miss Marie (Sub.), (H. E.), 2/25 time, 2217 Fulton St., Berkeley.

LAZEAR SCHOOL—Cont'd

Mottram, Mr. E. W. (M. T.), 2/25 time, 355 Fair Oaks St., San Francisco.

Manual Training is given in the Hawthorne School.
Golobic, Mr. Antone (Custodian), 2523 E. 10th St., Oakland.

LINCOLN SCHOOL.

Eleventh and Alice Sts. (12th St. car east at 12th and Broadway to Alice St. One block south.)

Greenwell, Mr. W. M., Principal, Townsend Apts., Oakland.

Intermediate Department

O'Meara, Miss J. (English), 387 Fair Oaks St., San Francisco.

Frank, Miss Esther (Arithmetic), 81 Pearl St., Oakland.

Christensen, Miss Susie (Home Economics), 2349 26th Ave., Oakland.

Prosser, Mr. J. R. (Manual Training), 2435 E. 23d St., Oakland.

McKay, Mrs. Cora P. (English), 9232 Hillside Ave., Oakland.

McFeely, Miss Agnes (History), 2915 Market St., Oakland.

Snee, Miss Sara (Geography, Drawing), 2831 Regent St., Berkeley.
Gillespie, Miss Jeanne (Geography, Arithmetic, History, English),
2914 Jackson St., San Francisco.

Stockton, Miss Emma (Geography, Arithmetic, History, English),
87 Hamilton Place, Oakland.

Smith, Mrs. E. L. (Geography, Arithmetic, History, English), 1829
Market St., Oakland.

Hallack, Mrs. E. A. (Sub.), (Music), 3/5 time, 839 36th St.,
Oakland.

Payne, Miss Nellie W. (Music), 2/5 time, 1502 Alice St., Oakland.

Lane, Miss Violet (5A), 2019 Webster St., Oakland.

Garoutte, Miss Clare (5A), 540 28th St., Oakland.

Fortier, Miss Margaret (4B), 1456 Jones St., San Francisco.

Willett, Mrs. M. E. (4B, 4A), 2939 Pine Ave., Berkeley.

Davis, Mrs. E. O. (4A), 438 E. 15th St., Oakland.

Booker, Miss Winifred C. (4A), 1514 Alice St., Oakland.

Russell, Miss Grace G. (3B), 2518 Dana St., Berkeley.

Mathews, Miss M. J. (3A), 1911 Webster St., Oakland.

Rinehart, Miss A. H. (2B), 1432 5th Ave., Oakland.

Carter, Miss Bertha (2A), 1112 Myrtle St., Oakland.

Dole, Miss Julia (1B), 1508 Madison St., Oakland.

Rainey, Mrs. Marion (1B), 278 Ridgeway Ave., Oakland.

Jacque, Miss Helen (1A), 92 8th St., Oakland.

DuBois, Miss Perle (Special Class), 5813 Lawton Ave., Oakland.

Şaulpaugh, Mr. J. A. (Custodian), 1482 12th St., Oakland.

LOCKWOOD SCHOOL.

E. 14th St. and 68th Ave. (E. 14th St. car marked "Elmhurst" at 13th and Broadway to 68th Ave.)

Greenman, Mr. C. H., Principal, 1049 44th Ave., Oakland.

Intermediate Department

Nelson, Miss Elizabeth (Grammar, Literature, Latin), 2223 Union
St., Berkeley.

Baxley, Miss Alice V. (Arithmetic, Spelling, Writing, Spanish),
2036 Rosedale Ave., Oakland.

Buckley, Miss Elizabeth (Home Economics), 2/5 time, 563 E. 14th St., San Leandro.
Hanford, Mr. Forrest S. (Drawing), 3/5 time, 3825 Division St., Oakland.
McCandlish, Miss Anna (History, Geography), 2831 Regent St., Berkeley.
Hirsch, Miss Edith (Music, Composition, Physical Training), 3138 Market St., Oakland.
Gillies, Mr. James (Manual Training), 8/25 time, 1448 Benton St., Alameda.

Richardson, Miss Claribel (6A), 39 Randwick Ave., Oakland.
Young, Miss Sarah L. (5B), 826 20th St., Oakland.
Peterson, Miss Mildred (5A), 2017 Delaware St., Berkeley.
Firth, Miss Emma (4B), 1505 Castro St., Oakland.
Seaman, Mrs. Carrie B. (Sub.), (4A), 2275 E. 15th St., Oakland.
Tottenham, Miss Muriel (3B), 336 Lenox Ave., Oakland.
Hendershott, Miss Shirley (3A), 1405 9th Ave., Oakland.
Mackenzie, Mrs. Eva E. (2B), 1742 11th Ave., Oakland.
Coggin, Miss Anna (German, 2A), 1708 55th Ave., Oakland.
Hitchcock, Miss Ruth A. (1B), 2222 89th Ave., Oakland.
Webb, Mrs. Esther B. (1A), 1736 12th Ave., Oakland.
Ingbritsen, Miss Evelyn (Kgtn.), 829 E. 19th St., Oakland.
Hunt, Mr. George J. (Sub.), (M. T.), 6/25 time, 384 35th St., Oakland.
Brown, Mr. J. R. (Custodian), 441 44th St., Oakland.

LONGFELLOW SCHOOL.

Thirty-ninth and Market Sts. (Grove St. car north at 14th and Washington Sts. to Apgar St. West about two blocks.)

Gilson, Mr. J. C., Principal, 1085 Bella Vista Ave., Oakland.
Departmental teaching in 6B, 7th and 8th grades:
Stanton, Miss Florence R. (History, Civics, English, Geography), 1844 8th Ave., Oakland.
Kell, Mr. J. A. (Arithmetic, Spelling), 3319 West St., Oakland.
Harris, Miss Grace D. (Music, Grammar, Composition), 566 33d St., Oakland.
Benner, Mr. W. A. (Physical Training, Hygiene, Literature, Spelling), 663 61st St., Oakland.
Jacobson, Miss Nellie (Drawing), 2/5 time, 829 E. 19th St., Oakland.
Beadles, Mrs. M. B. (Home Economics), 3/5 time, 1420 LeRoy Ave., Berkeley.
Yocum, Mr. J. E. (Sub.), (Manual Training), 33/50 time, 2232 E. 22d St., Oakland.

Lewis, Miss G. H. (6A), 1515 Webster St., Oakland.
Holman, Miss Luella S. (5B), 4516 Walnut Ave., Oakland.
Beaudette, Miss Alice I. (5A), Sutter Hotel, Oakland.
Caldwell, Miss Louise M. (4B), 540 28th St., Oakland.
Maestretti, Miss Ethel (4A), 2250 Eunice St., Berkeley.
Fitzgerald, Miss Margaret (3B), 1120 Hyde St., San Francisco.

LONGFELLOW SCHOOL—Cont'd

O'Connor, Miss Mary (3A), 930 Poplar St., Oakland.
Stuck, Miss Eva H. (2B, 2A), 1109 Oak St., Oakland.
Benjamin, Miss Gertrude A. (2A), 440 Hill Lane, Oakland.
Gordon, Miss Jennie M. (1B), 4532 San Carlos St., Oakland.
Freyschlag, Miss Bertha (1A), 581 27th St., Oakland.
Anderson, Miss Viola R. (1A), 686 38th St., Oakland.
Merrill, Mrs. Harriet V. (Kgtn.), 4324 Montgomery St., Oakland.
Higgins, Mr. J. H. (Custodian), 1202 Peralta St., Oakland.

MANZANITA SCHOOL.

Twenty-fourth Ave. and E. 26th St. (Fruitvale car at 12th and Broadway to E. 24th St. North about two blocks.)

Campbell, Mr. H. W., Principal (5B, 5A), 3877 Greenwood Ave., Oakland.
Harden, Miss Rena (Sub.) (5B, 5A), 1/2 time, 3432 Champion St., Oakland.
Barber, Miss Mabel (6B, 6A), 2312B Prince St., Berkeley.
Brauer, Miss Nelda (4B), 2334 E. 19th St., Oakland.
Gallagher, Miss Margaret (4A, 3B), 6459 Hillegass Ave., Oakland.
Garoutte, Miss Daisy M. (3A, 2B), Peralta Apts., Oakland.
Connor, Miss Alma F. (2B, 2A), 3026 Logan St., Oakland.
Kilgore, Mrs. Minnette H. (1B, 1A), 817 E. 16th St., Oakland.
Grubb, Miss Georgiana (1A), 1715 11th Ave., Oakland.
Mack, Miss Lucy E. (Kgtn.), 4/7 time, 525 E. 21st St., Oakland.
Thompson, Miss Jessie R. (Orchestra), 3/25 time, 2140 27th Ave., Oakland.
Hunt, Mr. George (Sub.), (Manual Training), 2/25 time, 384 35th St., Oakland.

Manual Training is given in the Fruitvale School.

Rogers, Mrs. F. H. (Custodian), 2672 24th Ave., Oakland.

McCHESNEY SCHOOL.

E. 38th St. and 13th Ave. (Park Blvd. car east at 13th and Broadway to E. 38th St.)

Forbes, Mr. W. D., Principal, Bauer Apts., Oakland.
Hartman, Miss Genevieve F. (6B, 6A), 1908 E. 38th St., Oakland.
Lernhart, Miss Edith A. (6A, 5B), 3954 14th Ave., Oakland.
Graham Mrs. Helen B. (5B, 5A), 2447 Hopkins St., Oakland.
Hanley, Miss Marguerite E. (4B), 3707 Fruitvale Ave., Oakland.
Votaw, Miss Della A. (4A), 3912 14th Ave., Oakland.
Jackson, Miss Lottie C. (4A, 3B), 909 Chestnut St., Oakland.
Hunt, Miss Isabel L. (3B, 3A), 529 Hobart St., Oakland.
Garner, Miss C. E. (2B), Landon Court Apts., Oakland.
Cullen, Miss Lila (2A), 2803 11th Ave., Oakland.
Marcum, Miss Bertha (1B, 1A), 1331 San Luis Ave., Oakland.
O'Connell, Miss Alice J. (1A), 325 E. 19th St., Oakland.
Schlotzhauer, Miss Margarete (Kgtn.), Hotel Claremont, Berkeley.
Cahill, Miss Clara C. (M. T.), 3/25 time, Madison Park Apts., Oakland.
Thompson, Miss Jessie R. (Orchestra), 1/5 time, 2140 27th Ave., Oakland.
Ricker, Mr. G. H. (Custodian), 3803 Randolph Ave., Oakland.

McCHESNEY ANNEX SCHOOL.

Tenth Ave. and E. 24th St. (8th Ave. car east at 13th and Broadway to 10th Ave.)

Hill, Mrs. E. I., Principal (1B, 1A), 1547 20th Ave., Oakland.

Ward, Miss Rose (2B, 2A), 1331 Castro St., Oakland.

Eilers, Mrs. M. (Custodian), 1357 25th St., Oakland.

MELROSE SCHOOL.

Fifty-second Ave. and E. 14th St. (E. 14th St. car marked "Elmhurst" at 13th and Broadway to 52nd Ave.)

Martin, Mr. Paul, Principal, 2119 Rosedale Ave., Oakland.

Wayland, Mrs. Jessica S. (8A, 7B), 49 Randwick Ave., Oakland.

Milledge, Miss Vincenza (7A, 6A), 1144 Clay St., San Francisco.

Cunningham, Miss Grace (5B, 5A), 1438 Madison St., Oakland.

Biedenweg, Mrs. Eva (5A, 4B), 2310 Seminary Ave., Oakland.

Mullen, Miss M. A. (4A, 3B), 861 Fell St., San Francisco.

Adriance, Miss Marion W. (3A, 2B), 1744 12th Ave., Oakland.

Foley, Miss Margaret F. (2B, 2A), 1132 Leavenworth St., San Francisco.

Turner, Miss A. S. (2A, 1B), 1830 7th Ave., Oakland.

Anderson, Miss B. Estelle (1A), 5008 Manila Ave., Oakland.

Shambaugh, Mrs. Korah S. (Kgtm.), 2247 42d Ave., Oakland.

Smith, Miss Jessie S. (Special), 1420 Le Roy Ave., Berkeley.

Cahill, Miss Clara C. (M. T.), 4/25 time, Madison Park Apts., Oakland.

Calder, Miss Jessie (M. T.), 4/25 time, 5304 Bryant Ave., Oakland.

Roehling, Miss Agnes A. (H. E.), 1/5 time, 829 E. 19th St., Oakland.

Shea, Miss Marie (Sub.), (H. E.), 1/5 time, 2217 Fulton St., Berkeley.

Peterson, Mr. C. (Custodian), 1360 52nd Ave., Oakland.

MELROSE HEIGHTS SCHOOL.

Congress and Ignacio Sts. (55th Ave. car east at 12th and Broadway to Congress St.)

Inskeep, Mr. Lorenzo D., Principal, 6449 Colby St., Oakland.

Intermediate Department

Pohl, Miss Wilhelmina H. (Arithmetic, History), 1848 7th Ave., Oakland.

Yates, Miss Edna L. (English), 1023 Magnolia St., Oakland.

Duden, Miss Alice (Drawing, Geography), 829 E. 19th St., Oakland.

Loban, Miss Elsie (Music, Arithmetic), 1438 88th Ave., Oakland.

Roehling, Miss Agnes A. (Home Economics), 1/5 time, 829 E. 19th St., Oakland.

Calder, Miss Jessie (Manual Training), 4/25 time, 5304 Bryant Ave., Oakland.

Cahill, Miss Clara C. (Manual Training), 4/25 time, Madison Park Apts., Oakland.

Atterbury, Miss Ophelia A. (5B), 1523 36th Ave., Oakland.

Hearsey, Mrs. Josie C. (5A, 4B), 451 Alcatraz Ave., Oakland.

Hunsaker, Miss Manelle (4B, 4A), 1126 E. 24th St., Oakland.

Curley, Miss Laura (3B and Spanish), 1825 Adeline St., Oakland.

MELROSE HEIGHTS SCHOOL—Cont'd

- Knox, Miss Lucy R. (3B, 3A), 2709 Forest Ave., Berkeley.
Brown, Mrs. Emily (2B), 254 Athol Ave., Oakland.
Teague, Miss Annie E. (2A), 5005 Congress Ave., Oakland.
Otero, Miss Anita (1B), 2661 Valdez St., Oakland.
Buckley, Miss Hannah (1A), 2527 Van Ness Ave., San Francisco.
Miller, Miss Flora O. (Kgtn.), 2122 Vicksburg Ave., Oakland.
Manual Training and Home Economics are given in the Melrose School.
Bloodsworth, Mr. Jesse (Custodian), 5005 Congress Ave., Oakland.

PERALTA SCHOOL.

Alcatraz and Telegraph Aves. (Telegraph Ave. car north at 14th and Broadway to Alcatraz Ave. East about one block.)

- Bradley, Miss Anne M., Principal (3A, 2A), 858 Lydia St., Oakland.
Harry, Miss Lena M. (4B, 4A, 3B), 484 Alcatraz Ave., Oakland.
Taylor, Mrs. Frances (1B, 1A), 498 Alcatraz Ave., Oakland.
Richardson, Mrs. Eva (Special), 2406 Dana St., Berkeley.
Such, Mr. Harold (Custodian), 6220 Telegraph Ave., Oakland.

PIEDMONT SCHOOL.

Piedmont and Echo Aves. (Piedmont Ave. car north at 14th and Broadway to Echo Ave.)

- Kottinger, Mr. E. W., Principal, 1526 Webster St., Oakland.
Intermediate Department
DuBois, Mrs. Irene (English, Literature), 3608 West St., Oakland.
Comstock, Miss Katherine (Drawing, Arithmetic), 2341 Valley St., Oakland.
Webster, Mrs. Angie H. (History, Civics, Geography), 1520 Wellington Ave., Oakland.
Tillman, Miss Florence (Music, Literature, Arithmetic), 2039 Alameda Ave., Alameda.
McKee, Miss Mabel (Manual Training, Drawing, Physical Training), 589 28th St., Oakland.
Rufener, Miss Mary (Home Economics), 3/5 time, Hotel Sutter, Oakland.

- White, Miss Edna A. (6A, 5B), 750 Grand Ave., Oakland.
Clarkson, Mrs. Caroline F. (5A, 4B), 2418 Channing Way, Berkeley.
Hammerly, Miss M. Lena (4B, 4A), 473 27th St., Oakland.
Olin, Miss May C. (3B, 3A), 625 Mariposa Ave., Oakland.
Shearer, Miss E. L. (3A, 2B), 438 Athol Ave., Oakland.
Leach, Miss Helen M. (2A), 51 Hamilton Place, Oakland.
Comstock, Miss C. P. (1B, 1A), 100 Manor Drive, Piedmont.
Amerman, Miss L. J. (1A), 258 Ridgeway Ave., Oakland.
Butler, Miss Mary B. (Special, French), 281 41st St., Oakland.
Jennings, Mr. C. B. (Custodian), 4315 Piedmont Ave., Oakland.

PRESCOTT SCHOOL.

Ninth and Campbell Sts. (West 8th St. car south at 14th and Washington Sts. to Campbell St. North one block.)

- Mortensen, Mr. G. E., Principal, San Leandro.
Boardman, Mrs. M. V. (English, Arithmetic, 6-8), 663 35th St., Oakland.
Wieland, Mr. W. A. (Literature, Hygiene, 5-8), 519 Pacific Ave., Alameda.

- Roney, Miss Nelle (English, Geography, History, 6-8), 1515 Webster St., Oakland.
- Jones, Miss Ella K. (Music, 3-8), 5631 Shafter Ave., Oakland.
- Wheeler, Miss Marie (English, Arithmetic, Geography, History, 5-8), 1726 Blake St., Berkeley.
- Barnett, Miss Maude L. (Sub.), (Drawing), 2/5 time, 2130 Ashby Ave., Berkeley.
- Roehling, Miss Agnes A. (Home Economics), 3/5 time, 829 E. 19th St., Oakland.
- Smith, Miss Gertrude (English, Arithmetic, History, 5B, 5A), 1515 Webster St., Oakland.
- Peters, Miss Jessie S. (Literature, 4B), 701 Sutter St., San Francisco.
- Leigh, Mrs. Julia S. (English, Arithmetic, History, Geography, 4A), 486 27th St., Oakland.
- Cerf, Miss Rebecca (Sub.), (Physical Training, 3-8), 2821 Steiner St., San Francisco.
- Batchelor, Miss Hazel (English, Arithmetic, History, Geography, 3B, 3A), 449 37th St., Oakland.
- Ross, Miss Irma (Nature Study, Hygiene, Drawing, 3-5), 1474 Sacramento St., San Francisco.
- Beckwith, Miss Ruth (English, 2-3), 438 65th St., Oakland.
- Corcoran, Miss Aleta (Manual Training, Drawing, Arithmetic, 2B, 2A), Hotel Menlo, Oakland
- Penny, Miss Mary (Sub.), (English, 2-3), 1521 Castro St., Oakland.
- Jacobs, Miss L. R. (Physical Training, Hygiene, Nature Study, Music, 2-3), 663 35th St., Oakland.
- Cockefair, Miss Ellen A. (English, 1-2), 2209 Telegraph Ave., Oakland.
- McNutt, Mrs. E. O. (Manual Training, Drawing, Music, Physical Training, Hygiene, Nature Study, Arithmetic, 1B), 5237 Trask Ave., Oakland.
- Cullie, Miss Isabel (English, 1A), 3115 Grove St., Oakland.
- Whitton, Miss Elizabeth (Manual Training, 1B), 383 Hawthorne Ave., Oakland.
- Albee, Mrs. Candyce R. (Sub.), (1A), 2900 California St., Oakland.
- Gates, Miss Olita A. (1A), 2440 Van Ness Ave., San Francisco.
- Gamble, Miss Mary E. (Special), 1419 Caroline St., Alameda.
- Rust, Miss Mary E. (Kgtn.), 669 16th St., Oakland.
- Humphrey, Mr. Albert (Band and Orchestra), 1/5 time, 681 17th St., Oakland.
- Bernhard, Mr. H. H. (Manual Training), 3/5 time, 1818 Prince St., Berkeley.
- Penick, Miss C. D. (Secretary), 5205 Cole St., Oakland.
- Ratcliffe, Mr. R. J. (Custodian), 1398 9th St., Oakland.

SANTA FE SCHOOL.

Fifty-fourth and Market Sts. (Grove St. car north at 14th and Washington Sts. to 54th St. About two blocks west.)

Richardson, Miss Anna, Principal, 545 25th St., Oakland.

SANTA FE SCHOOL—Cont'd

Milliken, Miss Marian (6B, 6A), 4009 Howe St., Oakland.
Monroe, Miss Ella (5B), 1617 Woolsey St., Berkeley.
Linville, Mrs. Grace (5A, 4B), 764 53d St., Oakland.
Grove, Miss Louise (4B, 4A), 4283 Howe St., Oakland.
Lane, Miss Gertrude (3B), 449 Mont Clair Ave., Oakland.
Rotermund, Miss Georgia (3A), 6035 Harwood Ave., Oakland.
Roane, Miss Louise (2B), 1508 Oxford St., Berkeley.
Harvie, Miss Hazel (2B, 2A), 135 15th St., Oakland.
Perdue, Miss A. C. (2A, 1B), 3153 College Ave., Berkeley.
Phillips Miss Elva (1B, 1A), 845 Bush St., San Francisco.
Ledyard, Miss Maritza (1A), 540 28th St., Oakland.
Underwood, Miss Lillian (Kgtm.), 2520 Etna St., Berkeley.
Yocum, Mr. J. E. (Sub.), (M. T.), 3/50 time, 2232 E. 22d St.,
Oakland.

Manual Training is given in the Longfellow School.
McNally, Mr. J. W. (Custodian), 938 53rd St., Oakland.

SEQUOIA SCHOOL.

Lincoln Avenue and Scenic St. (Dimond car east at 13th and Broadway to Lincoln Ave. North about three blocks.)

Hammond, Miss I. M., Principal (7B, 7A), 3004 Champion St.,
Oakland.

Paterson, Miss Margaret (6B, 6A, 5B), 829 E. 19th St., Oakland.

Anthony, Miss Fern (5A, 4B, 4A), 2304 Telegraph Ave., Berkeley.

Applegarth, Miss Maud N. (3B, 3A, 2B), 5848 Ocean View Drive,
Oakland.

Collier, Miss Gertrude (2A, 1B, 1A), 178 10th St., Oakland.

Hunt, Mr. George J. (Sub.), (M. T.), 7/50 time, 384 35th St.,
Oakland.

Hartung, Miss Mary (H. E.), 2/25 time, 1482 Alice St., Oakland.

Manual Training and Home Economics are given in the Fruitvale School.
Hutchinson, Mr. George, (Custodian), 3540 Fruitvale Ave., Oakland.

SOUTH ELMHURST SCHOOL.

Edes Ave. near Douglas Ave. (San Leandro or Hayward car at 13th and Broadway to Jones Ave. South about a mile and a quarter.)

Valley, Mrs. Abbie (Sub.), (3A, 2A, 1B, 1A), 1725 Castro St.,
Oakland.

Rego, Mrs. Virginia (Custodian), 721 Douglas Ave., Oakland.

TOMPKINS SCHOOL.

Fifth and Linden Sts. (West 8th St. car south at 14th and Washington Sts. to Linden St. About three blocks south.)

McFeely, Miss Susan M., Principal, 2915 Market St., Oakland.

Swan, Mrs. N. D. L. (6B, 6A), Hotel Claremont, Berkeley.

Carter, Miss N. A. (5B, 5A), 1112 Myrtle St., Oakland.

Whitney, Miss Elizabeth (5A, 4B), 1250 California St., San
Francisco.

Keegan, Miss Irene (4B, 4A), Hotel Sutter, Oakland.

Hartmann, Miss Amelia (3B, 3A), 727 Alcatraz Ave., Oakland.

Coady, Mrs. I. A. (Ungraded, 2-3), 901 Chestnut St., Oakland.

Earle, Miss Edna L. (2B, 2A), 727 20th St., Oakland.

Rutherford, Miss M. (1B, 1A), 1830 Harrison Boulevard, Oakland.

Gibson, Miss G. N. (1A), 296 Park View Terrace, Oakland.

Gillette, Miss Alta (Special), 229 Cambridge Ave., San Leandro.
Carlton, Miss Gertrude H. (Kgtn.), 730 19th St., Oakland.
Hartung, Miss Mary (H. E.), 2/25 time, 1482 Alice St., Oakland.
Cunningham, Miss Olivia (H. E.), 2/25 time, 1109 Oak St.,
Oakland.

Wood, Mr. Beverly (M. T.), 2/25 time, 3019 Peralta Ave., Oakland.

Manual Training is given in the Cole School.

Liston, Mr. J. (Custodian), 382 Jayne Ave., Oakland.

WASHINGTON SCHOOL.

Sixtieth St. and Shattuck Ave. (Shattuck Ave. car north at 14th and
Broadway to 60th St.)

Hudspeth, Mr. Charles E., Principal, 759 59th St., Oakland.

Intermediate Department

Gillett, Miss Effie M. (English), 2323 College Ave., Berkeley.

Dreiske, Mrs. Helen D. (Music, English), 578 61st St., Oakland.

Shelton, Miss Lulu A. (History, Arithmetic, Civics, Hygiene), 526
66th St., Oakland.

Clark, Mrs. Addie M. (Geography, Arithmetic), 2170 Coronado
Ave., Oakland.

Jacobson, Miss Nellie (Drawing), 3/5 time, 829 E. 19th St.,
Oakland.

Beadles, Mrs. Marion (Home Economics), 2/5 time, 1420 Le Roy
Ave., Berkeley.

Nevison, Mr. Beverly M. (Manual Training), 17/25 time, 656 60th
St., Oakland.

McMurray, Miss Margaret C. (6B), 1131 Oak St., Oakland.

Jewett, Miss Edith M. (6B), 2904 Webster St., Oakland.

De Large, Miss Mary Pearl (6A), 2153 Oregon St., Berkeley.

Beaty, Miss Rose E. (5B), 390 Alcatraz Ave., Oakland.

Pedigo, Miss Floy (5A), 1103 Adeline St., Oakland.

Trask, Miss Stella G. (4B), 308 Hobart St., Oakland.

Reidy, Miss Eileen (4A), 627 Taylor St., San Francisco.

Morris, Miss Anna (3B), 2143 Blake St., Berkeley.

Dolman, Miss Caroline (3A), 2828 Richmond Ave., Oakland.

Smith, Miss Myrtle S. (2B), 1600 Scenic Ave., Berkeley.

Gates, Mrs. Franklyn (2A), 1203 Shattuck Ave., Berkeley.

Woods, Miss M. Erle (2A), Mariposa Apts., Oakland.

Villinger, Miss Louise (1B), Hotel Claremont, Berkeley.

Clarcken, Miss Alice (1A), 2407 Woolsey St., Berkeley.

Roane, Miss Elsie (1A), 1508 Oxford St., Berkeley.

Morrison, Miss Florence (Kgtn.), 1704 Filbert St., Oakland.

Sharrer, Mr. David E. (Custodian), 907 59th St., Oakland.

WEST OAKLAND KINDERGARTEN.

401 Peralta St. (West 8th St. car south at 14th and Washington Sts to
Peralta St. South to 4th St.)

Farley, Miss Bess Lou (Kgtn.), 1515 Webster St., Oakland.

Vargas, Miss Mary (Custodian), 419 Campbell St., Oakland.

HIGH SCHOOLS

FREMONT HIGH SCHOOL.

Forty-seventh Ave. and Foothill Blvd. (55th Ave. car east at 12th and Broadway to 47th Ave.)

Cox, Mr. E. Morris, Acting Principal, 3059 Capp St., Oakland.

ENGLISH.

McMillan, Miss E. D. (Head of Department), 614 25th St., Oakland.

Craig, Miss Emily Z., Hotel Sutter, Oakland.

Gunn, Miss Elsie H., 916 E. 21st St., Oakland.

Kummer, Miss Grace, 18 Monte Ave., Piedmont.

Polland, Miss Alice, 4/7 time, 648 E. 17th St., Oakland.

Sturtevant, Miss Saidee, 648 E. 17th St., Oakland.

Swain, Miss Ethel, 2519 Hillcourt, Berkeley.

Wilkins, Miss Ruth, Peralta Apts., Oakland.

Wilson, Miss M. Genevieve, 1131 Oak St., Oakland.

HISTORY.

Goodwin, Mr. C. L. (Head of Department, United States, Civics, General), 2041 41st Ave., Oakland.

O'Connell, Miss Ella J. (English, Medieval, Modern), 687 25th St., Oakland.

Woodburn, Mr. R. C. (Community Civics, Ancient, United States), 155 Parkside Drive, Berkeley.

FOREIGN LANGUAGES.

Bailey, Miss Clara E. (Latin), 5788 Shafter Ave., Oakland.

Goetz, Miss Anna M. (Vice-Principal, Latin, German), 687 25th St., Oakland.

Haball, Miss Anna (Sub.), (Spanish), 3/7 time, 2516 Ridge Road, Berkeley.

Hutton, Miss Alegra (Spanish, French), Lakeshore Apts., Oakland.

Levy, Mrs. S. Ethel (German), 2325 Channing Way, Berkeley.

Murray, Miss Frances (Spanish), 245 Moss Ave., Oakland.

Rice, Miss Elena E. (Latin), 2511 Derby St., Berkeley.

MATHEMATICS.

Brasefield, Mr. H. D. (Vice-Principal, Algebra, Algebraic Theory), 544 Merrimac St., Oakland.

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CHABOT OBSERVATORY.

Leona Heights. (Mills College car at 13th and Broadway to end of line. About one-quarter of a mile by trail to Observatory.) Telephone Fruitvale 1686-W.

Burckhalter, Mr. Charles, Astronomer, 1440 Linden St., Oakland.
Deruchie, Mr. Fred (Custodian), 1968 35th Ave., Oakland.

CHABOT HALL.

Eleventh and Grove Streets.

Supervisors' Offices.
Common School Assembly Hall.

ELEMENTARY SCHOOL LEAVES OF ABSENCE.

Kindergarten.

January, 1917.

McMurray, Miss Esther

July, 1917.

Armstrong, Miss Sue
Risatti, Miss Anne

First and Second Grades.

January, 1917

Blythe, Miss Ethel S.
Cain, Miss Mary
Carroll, Miss Mary P.
Paddock, Miss Annabel
Perry, Miss Florence T.
Reid, Miss Myrtle

July, 1917.

Glover, Miss Anne
Hayward, Miss May
Jamison, Miss Marion
McAllister, Miss Alice
Osborn, Miss Ada E.
Power, Miss Frances
Wright, Miss Edna

Third and Fourth Grades.

January, 1917.

Cary, Miss Ida
Lichens, Miss Katherine
Russell, Miss Alice M.

July, 1917.

Burns, Miss Monica
Frey, Miss Estella F.
Reinhold, Miss Louise
Swim, Miss Madeline

Fifth and Sixth Grades.

January, 1917.

Conny, Miss Caroline L.
Miles, Miss Carita
Preble, Mrs. Fannie C.
Tobin, Miss Grace A.
Van Heusen, Miss Ruth
Winchester, Miss Helen

January, or July, 1917, at option
of Board.

Gay, Miss Martha
Slusser, Miss Grace

Seventh and Eighth Grades.

January, 1917.

Hamlin, Miss Adelaide
Hillyard, Mr. Sidney
Morgan, Mrs. Isabel M.
Ryst, Miss Ina

July, 1917.

Alderson, Miss Fern
Alltucker, Miss Margaret
Baumgartner, Miss Sera
Blauer, Miss Emma E.
Denike, Miss Mabel I.
Donovan, Miss Laura B.
Dudley, Mr. W. W.
Fenwick, Miss Georgina
Galbreath, Miss Neva L.
Goodrich, Miss Lois
Jamison, Miss Carrie L.
Johnson, Miss Winifred
Keyes, Miss Mary C.
de Laguna, Miss Augusta
Scott, Miss Faye T.

Evening School.

January, 1917.

Grimes, Mr. Lyman
Van Sickle, Mr. True

Special Teachers.

July, 1917.

Fowler, Mrs. Matilda (Home
Economics)
Hunter, Miss Kathryn (Home
Economics)
Roll, Miss Ella (Special)

HIGH SCHOOL LEAVES OF ABSENCE.

January, 1917.

Clark, Miss Gladys
Douglas, Miss Katherine M.
Gamble, Miss Hester
Tanquary, Miss Ruberta

July, 1917.

Altmeyer, Mr. A. J.
Anthony, Miss Edith A.
Horton, Miss Marion L.
Palmer, Miss Margaret
Simpson, Miss E. Myrtle

STATISTICAL TABLES

Table 1. Growth of Oakland and Its Schools—By Decades

Fiscal Year Ending	Population By U. S. Census	City Assessed Valuation	Total School Enrollment All Schools	Average Daily Attendance All Schools	Total Class Teachers
1853	100 ²	No record	No record	16	1
1860	1,549	" "	130	58	2
1870	10,500	" "	1,410	735	19
1880	34,555	\$ 28,348,778	6,125	4,983	127
1890	48,682	35,843,979	9,565	6,372	155
1900	66,960	43,275,381	11,976	8,512	230
1910 ¹	150,174	107,793,550	17,621	12,919	353
1916	198,602 ³	142,914,775	34,673	24,757	771

¹—For the year 1910, only the Total Population includes the annexation of 1909.

²—Estimated.

³—Based on U. S. Census Bureau estimates.

Table 2. Growth of the City and School Department Since Annexation of 1909

Year	City Assessed Valuation ¹	TOTAL SCHOOL ENROLLMENT						CLASS TEACHERS EMPLOYED ²					
		Kgtn.	Elementary Schools		High Schools		Kgtn.	Elementary Schools		High Schools			
			Day	Eve.	Day	Eve.		Day	Eve.	Day	Eve.		
1910-11	\$126,920,650	209	18,297	977	2,480	None	3	384	15	87	None		
1911-12	116,881,725	203	20,274	1,260	2,690	"	3	397	15	93	"		
1912-13	129,467,400	458	21,247	1,185	3,140	"	7	430	15	100	"		
1913-14	137,727,750	871	22,912	1,884	3,354	"	12	478	19	117	"		
1914-15	141,691,600	1,934	24,351	2,367	4,045	"	20	519	21	146	"		
1915-16	142,914,775	2,446	24,811	1,390	4,727	1,299	30	549	11.4	170.7	9.4		

¹—Figures furnished by City Auditor.

²—Owing to varying methods of counting "class teachers," this part of the table is only approximately correct. During the last two years the number represents the average of the number employed during the ten months of the year. Manual training, instrumental music, and other non-class teachers are not counted in the elementary schools. In the high schools, all teachers including librarians and pianists are counted. In no case does the number include supervising principals, clerks or vice-principals not teaching. Domestic Science teachers were considered non-class teachers prior to 1915-16.

Table 3. The Amounts and Sources of Oakland's School Revenues 1915-16

SOURCE OF REVENUE	Kindergarten Fund		Elementary School Funds			High School Funds			All School Funds	
	Amount	Tax Rate	Amount	Per Pupil Per Day	Tax Rate	Amount	Per Pupil Per Day	Tax Rate	Amount	Percent of Total Receipts
State Apportionments.....	\$314,052.50	8.8c	....	\$ 36,188.07	6.3c	....	\$350,240.57	22.6%
County Apportionments.....	375,626.05	10.5c	.27	185,656.36	32.2c	.14	561,282.41	36.2%
School District Taxation.....03	421,922.33	.....	.30	173,496.49	.....	.12	635,512.39	41.0%
Miscellaneous Non-Revenue Receipts.....	1,451.78	.....	....	766.10	.....	....	2,217.88	0.2%
Total Receipts.....	\$40,093.57	.03	1,113,052.66	.....	.57	\$396,107.02	.....	.26	\$1,549,253.25	100.0%

NOTES—1. This table does not include money received by the City Treasurer or that received by the County Treasurer for school district bonds. The amounts expended from these sources are shown in the footnotes to Table 4.

2. Tax rates shown above are the rates on each \$100 of assessed valuation (50% of true value).
3. Moneys received from the State come chiefly from corporation taxes.
4. State and county apportionments are based almost wholly on the average daily attendance of the preceding school year. From the foregoing table it will be seen that a single day's absence in the elementary schools means a loss of 19.3c to the district irrespective of the taxes paid. Similarly, a single day's attendance in high school is worth 38.5c.
5. The School District and County tax rates for school purposes for 1916-17 are as follows: Kindergartens \$.04, county tax for elementary schools, \$.27, district tax for elementary schools \$.30, county tax for high schools \$.16, district tax for high schools \$.19, tax for school district bonds \$.05.

Table 4. Principal School Expenditures 1915-16. (See notes below)

ITEMS	Kinder- gartens	Day Ele- mentary Schools	Evening Elementary Schools	Day High Schools	Evening High Schools	Total Expenditures	Per Cent of Total
I. CURRENT EXPENSES							
General Control.....	\$1,081.00	\$27,195.71	-----	\$5,002.97	-----	\$33,279.68	2.35%
Special Supervision.....	-----	24,992.43	-----	4,116.70	-----	29,109.13	2.06%
Principals and Clerks..	-----	76,381.18	\$611.00	14,111.06	-----	91,103.24	6.44%
Teachers' Salaries.....	32,939.65	685,689.99	5,918.90	259,305.55	\$5,689.50	989,543.59	69.98%
Text Books, Supplies, and other Instruction Expenses.....	726.75	37,755.80	148.35	14,521.70	-----	53,152.60	3.76%
Janitors, etc.....	1,000.00	55,539.74	-----	16,631.85	-----	73,171.59	5.17%
Fuel, Water, Light, Power, Janitors' Supplies, etc.....	1,016.00	27,341.45	93.94	11,933.65	-----	40,385.04	2.86%
Repairs, Replacements, etc.....	-----	46,063.48	1.78	12,615.91	-----	58,681.17	4.15%
Insurance.....	-----	1,182.25	-----	-----	-----	1,182.25	.08%
Libraries, Salaries, Books, etc.....	-----	2,876.64	-----	9,355.25	-----	12,231.89	.87%
School Health Depart- ment.....	682.00	13,112.54	-----	1,778.89	-----	15,573.43	1.10%
School Playgrounds.....	-----	8,311.30	-----	727.81	-----	9,039.11	.64%
Pupils' Carfare.....	-----	213.58	-----	-----	-----	213.58	.02%
Miscellaneous, includ- ing Interest on Reg- istered Warrants.....	91.73	5,130.95	.30	2,081.21	-----	7,304.19	.52%
Total Current Expenses.....	\$37,537.13	\$1,011,787.04	\$6,774.27	\$352,182.55	\$5,689.50	\$1,413,970.49	
Per Cent of Total.....	2.65%	71.56%	.48%	24.90%	.41%		100%
II. PERMANENT IMPROVEMENTS							
Land.....	-----	\$32,655.00	-----	\$364.97	-----	\$33,019.97	
Buildings.....	-----	30,465.26	-----	807.00	-----	31,272.26	
Equipment.....	210.93	15,377.07	75.11	13,265.96	-----	28,929.07	
Total Permanent Improve- ments.....	\$210.93	\$78,497.33	\$75.11	\$14,437.93		\$93,221.30	
Grand Total—All Expend- itures.....	\$37,748.06	\$1,090,284.37	\$6,849.38	\$366,620.48	\$5,689.50	\$1,507,191.79	

Notes. The following school expenditures for 1915-16 are not included in the foregoing table:

- From State, County, District and Trust Funds:**
 - Salaries and maintenance of Chabot Observatory.....\$ 3,739.23
 - Equipment of new Observatory in East Oakland..... 10,327.91
 - From Chabot Trust Fund..... 5,674.93
 - Interest on school district bonds—
Elementary \$44,200; High \$3,487.50..... 47,687.50
 - Redemption of school district bonds—
Elementary \$42,000; High \$6,500..... 48,500.00

Total from State, County and District Funds.....\$115,929.57
- From City Funds:**
 - School Directors \$2,840; N. E. A. entertainment \$114.85;
Inspection of Telescope \$20.....\$ 2,974.85
 - Clawson School..... 103,666.74
 - Special Tax for Buildings, Elementary \$28,455.56; High
\$12,252.81..... 40,708.37
 - Chabot Observatory..... 9,775.72
 - Interest on City School Bonds, Elementary \$84,426.78;
High \$32,199.23..... 116,626.01
 - Redemption of City School Bonds, Elementary \$68,365.08;
High \$23,405.30..... 91,770.38

Total from City Funds.....\$365,522.07
- Grand Total of Expenditures not included in Table.....\$481,451.64**

Note that the grand total of all expenditures for schools for the year was \$1,988,643.43. Of this amount \$164,313.51 was for interest on school bonds. The new Emerson School, one of the finest elementary school buildings in the city, cost only about \$163,250 to complete.

The school expenditures from municipal funds (See note 2, above) other than the Clawson Construction Fund (which represents proceeds of bonds) involved a tax of \$.1332 in addition to the school taxes shown in Table 3.

Table 5. Estimated School Expenditures 1916-17
(Exclusive of Chabot Observatory, School Bonds,
and Municipal Appropriations)

ITEMS	Kinder- garten	Day and Evening Elementary	Day and Evening High	Total	Per Cent of Total
I. CURRENT EXPENSES					
General Control.....	\$1,419.70	\$29,325.50	\$6,673.80	\$37,419.00	2.27%
Special Supervision.....	368.00	21,043.00	4,961.00	26,372.00	1.60%
Principals and Clerks.....	3,850.21	74,007.79	21,932.00	99,790.00	6.05%
Teachers' Salaries.....	33,720.00	726,614.00	299,692.00	1,060,026.00	64.24%
Text Books, Supplies, and Other Instruction Ex- penses.....	1,180.00	44,477.00	18,524.35	64,181.35	3.89%
Janitors, etc.....	2,953.00	55,162.00	19,243.00	77,358.00	4.69%
Fuel, Water, Light, Power Janitors' Supplies, etc.	1,791.00	33,913.29	15,198.72	50,903.01	3.08%
Repairs, Replacements, etc.	5,001.10	81,119.91	58,079.49	144,200.50	8.74%
Insurance .....	.....	16,871.61	5,356.61	22,228.22	1.35%
Libraries: Salaries, Books, etc.	150.00	4,298.44	12,297.00	16,745.44	1.01%
School Health Dept.....	712.00	13,529.00	1,857.00	16,098.00	.98%
School Playgrounds.....	.....	11,869.00	1,600.00	13,469.00	.81%
Pupils' Carfare.....	.....	250.00	.....	250.00	.01%
Miscellaneous, including Interest on Registered Warrants, Judgments, and Awards.....	931.00	15,388.35	4,756.00	21,075.35	1.28%
Total Current Expenses.....	\$52,076.01	\$1,127,868.89	\$470,170.97	\$1,650,115.87	
Per Cent of Total.....	3.16%	68.35%	28.49%		100%
II. PERMANENT IMPROVE- MENTS					
Land .....	.....	\$1,139.49	\$5,393.00	\$6,532.49	
Buildings .....	.....	25,170.58	7,705.00	32,875.58	
Equipment	\$5,581.54	13,390.59	50,810.11	69,782.24	
Total Permanent Improve- ments.....	\$5,581.54	\$39,700.66	\$63,908.11	\$109,190.31	
Grand Total of Budget.....	\$57,657.55	\$1,167,569.55	\$534,079.08	\$1,759,306.18	



FROM THE PRESS OF THE
Oakland Tribune



T23904



DEPARTMENT OF
PUBLIC INSTRUCTION
OAKLAND CALIFORNIA

COURSE *of* STUDY

HIGH SCHOOLS

BOARD *of* EDUCATION BULLETIN

NUMBER 3

DECEMBER, 1916

The Oakland High Schools

OAKLAND HIGH SCHOOL
OAKLAND EVENING HIGH SCHOOL

TWELFTH AND JEFFERSON STREETS

TECHNICAL HIGH SCHOOL
TECHNICAL EVENING HIGH SCHOOL

FORTY-THIRD STREET AND BROADWAY

JOHN C. FREMONT HIGH SCHOOL
JOHN C. FREMONT EVENING HIGH SCHOOL

FORTY-SEVENTH AVENUE AND FOOTHILL BOULEVARD

UNIVERSITY HIGH SCHOOL

FORTY-EIGHTH AND WEBSTER STREETS

VOCATIONAL HIGH SCHOOL
VOCATIONAL EVENING HIGH SCHOOL

TWELFTH AND MARKET STREETS

COURSES OFFERED IN THE OAKLAND HIGH SCHOOLS.

(For details see pages 8 and 9)

Course I	Course II	Course III	Course IV	Course V
College Preparatory	College Preparatory	Elective Course	Stenographer's Course	Industrial or Trade Course
For College of Letters and Science	For Scientific and Engineering Colleges	Not Preparatory to University		
Fremont Oakland Technical University*	Fremont Oakland Technical University	Fremont Oakland Technical University Oakland Evening Technical Evening	Fremont Oakland Technical Oakland Evening Technical Evening Fremont Evening	Technical Vocational† Technical Evening Vocational Evening

*The University High School is a six-year high school beginning with the seventh grade, and is under the supervision of the Department of Education of the University of California. Its students are permitted, by special arrangement, to take courses in manual arts, home economics, or commercial subjects at the Technical High School which is located nearby.

†The Vocational High School, also a six-year high school beginning with the seventh grade, offers technical instruction in industrial subjects and home economics. The purpose of the school is to afford industrial training and related academic instruction for boys and girls who have the ability and the desire to engage in practical wage-earning occupations and to continue at the same time a general education. It does not assume to turn out journeymen or take from industry the entire responsibility of training for apprenticeship, but the instruction given should materially shorten the period of apprenticeship and give, at the same time, a technical and a general education. The following subjects are taught: English, economics, history and civics, hygiene, applied science and mathematics, joinery and patternmaking, machine shop practice, forging, automobile mechanics, electrical construction, printing, instrumental drawing, millinery, and dressmaking.

The evening high schools offer an elastic course designed to fit the needs of the students. The subjects of instruction include English, Spanish, history, chemistry, mathematics, drawing, penmanship, commercial arithmetic, bookkeeping, accounting, stenography, typewriting, office appliances and practice, music, millinery, dressmaking, printing, forge, cabinet making, machine shop, electricity, and physical training. English for immigrants and citizenship as a preparation for naturalization are special features of the evening schools.

SOME SUGGESTIONS TO STUDENTS CONCERNING THE CHOICE OF SUBJECTS.

Each student is expected to pursue four subjects. By consent of the faculty he may elect a fifth subject, providing he has maintained a sufficiently high standard of scholarship during the preceding term.

It is well for students to plan their courses with some definite end in view. Where they are unable to do this they are advised to enroll in Course I which is sufficiently elastic to permit wide election and at the same time to provide for college entrance; otherwise, they may find themselves after graduation unable to meet the matriculation requirements in any university.

Those who have definitely decided to enter the University of California should carefully consult the entrance requirements and the prerequisites for the junior certificate, all of which are clearly stated in this circular, pages 10-15, and should plan their course of study accordingly.

A choice of languages will depend upon the future plans of the student. Those preparing to enter college will find suggestions regarding this subject under Recommendations for the Various Curricula on pages 16-19. It is unwise, however, to begin the study of a foreign language and to abandon it after a year or two to begin a second. Having once been commenced, the study of a language should be continued for at least three or four years.

The primary purpose of the Stenographer's Course is to prepare pupils for clerical positions. The supply of stenographers, however, is now greater than the demand and the remuneration mediocre except for such as have exceptional training and ability. There is, nevertheless, a distinct advantage in a certain amount of such training, even for those preparing for college, and inasmuch as university entrance

credit is allowed for a limited amount of such work, a year course in commercial subjects, taken preferably in the third or fourth years, is worthy of consideration. One year of concentrated commercial work will equip a well trained and mature high school pupil for a clerical position. The extension of commercial relations with Mexico and South America indicates that special business opportunities will be afforded in the future to young people with a knowledge of the Spanish language.

Students who are preparing to make a profession of music are advised to enroll in the Elective Course and to choose one or two subjects in music each term. In addition to music, French or German, or both languages, history, and English may be pursued with profit.

The Industrial Course is arranged with a view to shortening the period of apprenticeship for those preparing to enter the field of industry. Those who wish to include more than one year's shop work as a part of college admission requirements are advised to enroll in Course I.

Girls who are not desirous of pursuing college preparatory or commercial work are recommended to register in the Elective Course and to take one or two subjects each term in the home economics department. This course offers a comprehensive and interesting field of study, especially when household chemistry, sanitation, and drawing are elected, and affords special preparation for household administration.

Those planning to enter a state normal school in preparation for teaching in the elementary schools should read carefully the Rules of the State Board of Education given on page 7.

The State Board of Health has established new requirements which will become effective after Sept. 1, 1918, to raise Nursing to a professional plane. The candidate for admission to courses of training must present a high school diploma and evidence of having had four years of English, one year of Chemistry, one year of Biology and two years of Hygiene, Sanitation, and Household Arts. In order to pass the examination given by the State Board, the candidate must also have Sociology, Psychology, and one Foreign Language.

MINIMUM REQUIREMENTS OF THE STATE BOARD OF
EDUCATION FOR GRADUATION FROM THE REGULAR
TEACHER'S COURSE IN A STATE NORMAL SCHOOL.

The following table shows the minimum number of units of each subject required of graduates of the state normal schools. Note that some of these courses *must* be taken at the high school; others *may* be taken at either the high school or the normal school:

General Requirements.	Units
*English Literature and Language, including grammar, composition and oral expression.....	2
*Physical Science—One year of general science, including the applied elements of physics, chemistry and physical geography, or one year of physics or chemistry or physical geography, provided that for students entering after June 30, 1918, the general science shall be prescribed.....	1
Biological Science, including physiology, hygiene and sanitation..	1
*History of the United States and Civics, including local and state government	1
*World History	2
Drawing and Painting, including applied design.....	1
Music, including sight reading, two-part singing, and elementary harmony	1
Manual Training or Household Arts, or both; provided, that for students entering after June 30, 1918, one unit shall be required	½
Elements of Agriculture, including practical work in gardening, floriculture and plant propagation; provided, that for students entering after June 30, 1918, one unit shall be required	½
*Mathematics, including general mathematics or the applied elements of algebra or plane geometry, or commercial arithmetic	1
Professional Requirements.	
**Elements of Applied Sociology, including the study of institutions and social organizations, rural life and rural school problems	½
**Education, including a study of the school as an institution and the curriculum, general psychology applied to education and general method	1
**Practice Teaching and Special Methods which shall familiarize the student with and give him a mastery of the state series of textbooks, and which shall in addition thereto include special methods in all of the required statutory subjects; provided, that at least one (1) unit shall be given to practice teaching and at least one-third of the total time given to practice teaching shall be in a classroom, by the classroom method and under direct supervision.....	2¾
**The California School System, School Law, and their development	¼
**Physical Education, Athletics, Play, School Playground Equipment, and Indoor and Outdoor Recreation.....	½
Possible Electives	8
Possible Electives for those entering after June 30, 1918.....	7
Minimum units required for graduation.....	24

*Must be taken in a high school

**Must be taken in a normal school.

OUTLINE OF COURSES OF STUDY FOR THE HIGH SCHOOLS

	<p style="text-align: center;">COURSE I</p> <p style="text-align: center;">College Preparatory Course</p> <p>Preparatory to the University of California in the College of Letters and Science (the college of general culture) and the College of Commerce.</p>	<p style="text-align: center;">COURSE II</p> <p style="text-align: center;">College Preparatory Course</p> <p>Preparatory to the University of California in the Colleges of Mechanics, Mining, Civil Engineering, and Chemistry and the course in Architecture.</p>	<p style="text-align: center;">COURSE III</p> <p style="text-align: center;">Elective Course</p> <p>The elective course is not preparatory to the University. At least three years' work in each of three of the following groups of subjects is required for graduation: English, History, Mathematics, Foreign Languages, Science, Home Economics, Commercial, Music, Drawing, and Mechanic Arts.</p>	<p style="text-align: center;">COURSE IV</p> <p style="text-align: center;">Stenographer's Course.</p>
FIRST YEAR	English Algebra Foreign Language, Ancient or Modern Elective	English Algebra Foreign Language Freehand Drawing	English Elective Elective Elective	English Bookkeeping Spelling and Commercial Arithmetic Penmanship Elective
SECOND YEAR	English Plane Geometry Foreign Language, Ancient or Modern Elective	English Plane Geometry Foreign Language Geometrical Drawing	English Elective Elective Elective	English Typing I Stenography I Elective
THIRD YEAR	Elective Elective Elective Elective Of the third and fourth year electives, two units must be taken from the following: adv. mathematics, additional foreign language, laboratory science of third or fourth year.	English or Foreign Language Chemistry Mathematics Elective	English Elective Elective Elective	English Typing II Stenography II Elective
FOURTH YEAR	U. S. History and Government †Science Elective Elective	English or Foreign Language U. S. History and Government Physics Mathematics	U. S. History and Government *Science Elective Elective	U. S. History and Civics Commercial Law ½ *Science Stenography and Office Practice Elective ½

† May be taken in the third year.

* May be taken in any year of the course.

OUTLINE OF COURSES OF STUDY FOR THE HIGH SCHOOLS—Con.

COURSE V Industrial.	ELECTIVES
	<p>In choosing Electives, pupils preparing for College or higher schools should consult the admission requirements of the institutions which they propose to enter.</p>
<p>FIRST YEAR English Drawing Mathematics Shop, 20 hours</p>	<p>Commercial: Typing I, Penmanship, Spelling and Commercial Arithmetic, Bookkeeping I. Drawing: Freehand and Mechanical. History: Ancient History, General History. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Algebra I, Shop Mathematics. Mechanic Arts: Shop, ten to twenty hours. Music: Choral I or II, Band, Orchestra. Science: Physical and Commercial Geography, General Science, Botany.</p>
<p>SECOND YEAR English Drawing Mathematics Shop, 20 hours</p>	<p>Commercial: Bookkeeping I or II, Stenography I, Typing I. Drawing: Freehand, Mechanical, Design. History: Ancient History, General History, Mediaeval and Modern History. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Plane Geometry, Shop Mathematics, Algebra I. Mechanic Arts: Shop, ten to twenty hours. Music: Band, Orchestra, Choral I or II. Science: Botany, Biology.</p>
<p>THIRD YEAR Economics Industrial Physics Shop, 20 hours</p>	<p>Commercial: Stenography I or II, Typing I or II, Bookkeeping I or II, Salesmanship $\frac{1}{2}$, Advertising $\frac{1}{2}$. Drawing: Freehand, Mechanical, Design. English: English III, Argumentation, Public Speaking. History: English History, Mediaeval and Modern History, Economics. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Algebra I, Plane Geometry, Solid Geometry $\frac{1}{2}$, Trigonometry $\frac{1}{2}$, Advanced Algebra A $\frac{1}{2}$. Mechanic Arts: Shop, ten to twenty hours. Music: Harmony, Band, Orchestra, Choral I or II. Science: Chemistry, Physics, Biology, Physiology and Hygiene, Botany.</p>
<p>FOURTH YEAR U. S. History and Civics Elective Shop, 20 hours</p>	<p>Commercial: Stenography I or II, Typing I or II, Bookkeeping I or II, Advertising $\frac{1}{2}$, Commercial Law $\frac{1}{2}$, Accounting $\frac{1}{2}$. Drawing: Freehand, Mechanical, Design. English: Argumentation, English III or IV, Public Speaking. History: Economics. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Plane Geometry, Advanced Algebra A $\frac{1}{2}$, Advanced Algebra B $\frac{1}{2}$, Solid Geometry $\frac{1}{2}$, Plane Trigonometry $\frac{1}{2}$, Shop Mathematics. Mechanic Arts: Shop, ten to twenty hours. Music: History of Music, Harmony, Composition, Band, Orchestra, Choral I or II. Science: Physiology and Hygiene, Physics, Chemistry, Botany, Biology.</p>

REQUIREMENTS FOR ADMISSION TO THE UNIVERSITY OF CALIFORNIA.

The requirements for admission to the University of California, as given in the *Circular of Information*, August, 1916, pp. 55-66, follow:

LIST OF PREPARATORY SUBJECTS.

Units of Credit—The amount of work represented both by preparatory or high school subjects and by the University courses is specified quantitatively. In the University a unit signifies one hour per week of recitation or lecture, with preparation therefor, during one half-year. A course of study taken in the preparatory school for one year at five periods per week is valued at 3 units. Laboratory hours not requiring preparation are estimated at a lower rate than recitations and lectures.

	Units		Units
*A English Expression.....	---	12f Physiology	3
*B Foreign Language.....	---	12g General Science.....	3
1 English, elem.....	6	13a History, Med., Mod. etc.	3
2 Plane Geometry.....	3	13b History, English.....	3
3 Elementary Algebra.....	3	14a English, adv.....	3
†4a ¹ Alg. Theory, I.....	1½	14b English, Adv.....	3
†4a ² Alg. Theory, II.....	1½	15a ¹ 1 yr. of 15a ²	[3
†4b ¹ Solid Geometry.....	1½	†15a ² French, elem.....	6
5 History and Government	3	†15a ³ French, intermed.....	3
of the U. S.....	3	†15a ⁴ French, adv.....	3
6a Cæsar	3	15b ¹ 1 yr. of 15b ²	[3
6b Latin Comp., elem.....	3	†15b ² German, elem.....	6
6ab ¹ 1 yr. of 6ab.....	[3	†15b ³ German, intermed.....	3
†7a Cicero	2	†15b ⁴ German, adv.....	3
†7b Virgil	2	15c ¹ 1 yr. of 15c ²	[3
†7c ¹ Latin Comp., adv.....	1	†15c ² Spanish, elem.....	6
†7c ² Latin Comp., adv.....	1	†15c ³ Spanish, intermed.....	3
†8a Elementary Greek.....	3	†15c ⁴ Spanish, adv.....	3
†8b Attic Prose	3	†16 Free-hand Drawing.....	3
†9a Attic Prose, adv.....	1½	†17 Geometrical Drawing.....	3
†9b Homer	1½	18a Mechanical Arts.....	1½-9
10 History, Anc., etc.....	3	18b Applied Art.....	1½-3
11 Physics	3	18cde Domestic Science.....	1½-9
†12a ¹ Synthetic Projective	3	19 Agriculture.....	1½-9
Geometry.....	1½	20a Economic Geography.....	1½
†12a ² Plane Trigonometry.....	1½	20b Commercial and Indus-	3
†12a ³ Plane Analytic Geometry	1½	trial History.....	3
.....	3	20c Bookkeeping.....	3
12b Chemistry	3	20b Stenography and Type-	3 or 6
12c Botany	3	writing.....	3 or 6
12d Zoology	3	21 Music	3-9
12e Physical Geography.....	3		

*SUBJECT A, English expression, SUBJECT B, ability to read a foreign language, ancient or modern (French, German, Greek, Italian, Latin, Spanish). While these subjects are not matriculation requirements, they are mentioned here because of the fundamental importance of a proper high school training in meeting these requirements. A is a requirement for junior standing in all the colleges at Berkeley and B a requirement for the junior certificate in the College of Letters and Science and in the College of Commerce; it is required for the bachelor's degree in the College of Agriculture. Credit is given upon examination only, not upon certificate nor upon the formal completion of any course of study. These examinations are regularly held every half-year, Subject B immediately preceding the final examinations in December and May and Subject A during the first week of instruction in August and January.

†The dagger indicates subjects for which equivalent courses are offered in the University. For further description of these courses reference should be made to the annual Announcement of Courses.

Subjects 6ab¹, 15a¹, 15b¹, and 15c¹ represent the minimum credit in Latin, French, German, and Spanish, respectively—one year of high school work. Such credit is ordinarily given only upon recommendation, not upon examination.

ADMISSION REQUIREMENTS UNIVERSITY OF CALIFORNIA

Any person sixteen years of age or over may enter any of the academic colleges as a regular student, without deficiency, if he is able to meet the following requirements:

ENGLISH, two years..... (Subject 1)*.	6 units
MATHEMATICS, four years..... (Subjects 2, 3, 4a, 4b, 12a ²).	12
FOREIGN LANGUAGES, four years..... Latin (subjects 6a and 6b);† and German (15b ²) or French (15a ²) or Spanish (15c ²) or Greek (8) or advanced Latin (7). (See also subjects A and B under List of Preparatory Subjects).	12
HISTORY, one year..... (Subjects 5, 10, 13a or 13b).	3
SCIENCE, two years..... Physics (11)† and Chemistry (12b).†	6
DRAWING, two years..... Freehand (16) and Geometrical (17).	6 —
TOTAL	45 units

HOWEVER, NO COLLEGE REQUIRES ALL THE SUBJECTS LISTED ABOVE, but each permits certain modifications in the requirements, which enable students to gain time for elective subjects in the high school if they choose to do so. A student who desires to modify his high school course from the standard given above should carefully study the requirements listed below for all curricula which he might eventually choose at the University.

*The numbers in parentheses refer to the matriculation subjects listed on a preceding page; for example, 2 is plane geometry.

†The University does not offer courses equivalent to subject 6 (elementary Latin). This subject must be taken in the high school, if at all. Elementary physics and elementary chemistry are offered in the summer session of the University, but not in the fall or spring sessions.

ADMISSION REQUIREMENTS UNIVERSITY OF CALIFORNIA

MATRICULATION GROUP I

The minimum requirements for complete matriculation in the COLLEGE OF LETTERS AND SCIENCE and the COLLEGE OF COMMERCE are as follows:

ENGLISH, two years.....	6 units
(Subject 1).	
MATHEMATICS, two years.....	6
Plane Geometry (2)* and Elem. Algebra (3).	
FOREIGN LANGUAGES, two years.....	6
Any one of, or any combination, from the following:	
Latin (6) †, Greek (8), French (15a), German (15b), Spanish (15c).	
(See also subjects A and B under List of Preparatory Subjects).	
HISTORY, one year.....	3
U. S. (5), or Ancient (10), or Medieval and Modern (13a), or English (13b).	
NATURAL SCIENCE (taken with laboratory work in classes of third- and fourth-year pupils), one year.....	3
Physics (11) †, or Chemistry (12b) †, or Botany (12c), or Zoology (12d), or Physiology (12f).	
ADDITIONAL	6
Any combination from the following:	
Advanced Mathematics (4a, 4b, 12a).	
Additional foreign language, ancient or modern (6, 7, 8, 9, 15).	
Additional Laboratory Science taken in classes of third- and fourth-year pupils (11, 12b, 12c, 12d, 12f).	
ELECTIVE	15
(These may include not more than 9 units chosen from subjects 18 to 21 and high school subjects not listed by the University).	
TOTAL	45 units

The candidate for admission must have chosen his preparatory subjects in such a way as to have a total of 12 units of "advanced" subjects. Advanced subjects are as follows: $4a^1$, $4a^2$, $4b$, 5, 7, 9, 11, 12 (excluding sciences given in the first and second years of the high school), 13b, 14, $15a^3$, $15a^4$, $15b^3$, $15b^4$, $15c^3$, $15c^4$.

Any student who has fulfilled the requirements of Group 1 will be admitted to the College of Letters and Science. However, he will find his choice of studies much restricted unless he has chosen his optional and elective units with due regard to the curriculum he intends to pursue at the University. Requirements and recommendations for preparatory studies have been made by the University; these will be found on pages 16 to 19 of this circular.

*The numbers in parentheses refer to the matriculation subjects listed on a preceding page; for example, 2 is plane geometry.

†The University does not offer courses equivalent to subject 6 (elementary Latin). This subject must be taken in the high school, if at all. Elementary physics and elementary chemistry are offered in the summer session of the University, but not in the fall or spring sessions.

ADMISSION REQUIREMENTS UNIVERSITY OF CALIFORNIA

MATRICULATION GROUP II

The requirements for complete matriculation in the colleges of MECHANICS, MINING, CIVIL ENGINEERING, and CHEMISTRY, the curriculum in ARCHITECTURE (College of Letters and Science) and the curriculum in FOREST UTILIZATION (College of Agriculture) are as follows:

ENGLISH, two years.....	6 units
(Subject 1).	
MATHEMATICS, four years.....	12
Plane Geometry (2)*, Elem. Algebra (3), Algebraic Theory (4a ¹), Algebraic Theory (4a ²) or Plane Analytic Geometry (12a ³), Solid Geometry (4b), Plane Trigonometry (12a ²).	
FOREIGN LANGUAGES, two years.....	6
Any one of, or any combination from, the following:	
Latin (6)†, Greek (8), French (15a), German (15b), Spanish (15c).	
(See also Subjects A and B under List of Preparatory Subjects).	
HISTORY, one year.....	3
U. S. (5), or Ancient (10), or Medieval and Modern (13a), or English (13b).	
SCIENCE, two years.....	6
Physics (11)† and Chemistry (12b)†.	
DRAWING, two years.....	6
Freehand (16) and Geometrical (17).	
ADDITIONAL	6
Any one of, or any combination from the following:	
Additional foreign language (6, 7, 8, 9, 15).	
Advanced English (14).	
TOTAL	45 units

Group II, with any of the foreign languages listed will admit also to the College of Agriculture, or to the College of Letters and Science; but see also Group I (for Letters and Science) and III (for Agriculture). Group II with 6 units of Latin† will admit to any curriculum of the University.

Caution: The attention of students who are preparing to enter any of the engineering colleges is directed to the following facts:

*The numbers in parentheses refer to the matriculation subjects listed on a preceding page; for example, 2 is plane geometry.

†The University does not offer courses equivalent to subject 6 (elementary Latin). This subject must be taken in the high school, if at all. Elementary physics and elementary chemistry are offered in the summer session of the University, but not in the fall or spring sessions.

ADMISSION REQUIREMENTS UNIVERSITY OF CALIFORNIA

The regular curriculum of the first year in all the engineering colleges (the four-year courses) includes mathematics, physics, chemistry, and surveying. Admission to any one of these courses is conditioned upon the satisfaction of the following entrance requirements: For mathematics and surveying—plane and solid geometry (2 and 4*b*), a year and a half of algebra (3, 4*a*¹), plane trigonometry (12*a*²) and either an additional half year of algebra (4*a*²) or plane analytic geometry (12*a*³); for physics—elementary physics (11); for chemistry—elementary chemistry (12*b*); for surveying, in addition to the mathematics—geometrical drawing (17). Deficiency in any one of these prerequisites will postpone the corresponding university course until the deficiency is removed and will inevitably prevent the completion of the course in engineering in four years. Moreover, courses in elementary physics and chemistry are not offered by the University, except during the summer session.

Students who prefer to devote five years to the completion of the courses in engineering are also advised to present all the subjects of matriculation group II as stated above. For students in the five-year courses the regular curriculum of the first year includes mathematics and chemistry, while physics and surveying may be deferred to the second year. Deficiency in one of these prerequisites will postpone the corresponding university course and will thus usually prevent graduation in five years.

ADMISSION REQUIREMENTS UNIVERSITY OF CALIFORNIA

MATRICULATION GROUP III

The minimum requirements for complete matriculation in the COLLEGE OF AGRICULTURE, except the curriculum in FOREST UTILIZATION, are as follows:

ENGLISH, two years..... (Subject 1.)	6 units
MATHEMATICS, two years..... Plane Geometry (2)* and Elementary Algebra (3).	6
FOREIGN LANGUAGES, two years..... Any one of, or combination from, the following: Latin (6)†, Greek (8), French (15a), German (15b), Spanish (15c). (See also subjects A and B under List of Preparatory Subjects).	6
HISTORY, one year..... U. S. (5), or Ancient (10), or Medieval and Modern (13a), or English (13b).	3
NATURAL SCIENCE, two years..... Physics (11)† and Chemistry (12b).†	6
OPTIONAL (from subjects 4-17 inclusive).....	9
ELECTIVE	9
TOTAL	45 units

The candidate for admission must have chosen his preparatory subjects in such a way as to have a total of 12 units of "advanced subjects." Advanced subjects are as follows: 4a¹, 4a², 4b, 5, 7, 9, 11, 12 (excluding sciences given in the first and second years of the high school), 13b, 14, 15a³, 15a⁴, 15b³, 15b⁴, 15c³, 15c⁴.

*The numbers in parentheses refer to the matriculation subjects listed on a preceding page; for example, 2 is plane geometry.

†The University does not offer courses equivalent to subject 6 (elementary Latin). This subject must be taken in the high school, if at all. Elementary physics and elementary chemistry are offered in the summer session of the University, but not in the fall or spring sessions.

RECOMMENDATIONS FOR THE VARIOUS CURRICULA
UNIVERSITY OF CALIFORNIA

The requirements and recommendations for the various curricula are stated below.

The terms "required" and recommended" are to be interpreted as follows:

Required: Subjects without which the students will not be able to enter the regular curriculum. The omission of required subjects at matriculation will usually result in delay in graduation.

Recommended: Subjects which will give more effective preparation and thus allow greater freedom of election at the University. The omission of these subjects at matriculation usually will not delay graduation if the student's work at the University is properly planned.

Agriculture: leading to the degree of Bachelor of Science in the COLLEGE OF AGRICULTURE.

Required: Group III.

Recommended: Drawing (16, 17), Trigonometry (12a²).

Anthropology: leading to the degree of Bachelor of Arts.

Required: Group I.

Architecture: leading to the degree of A. B. in the COLLEGE OF LETTERS AND SCIENCE, at the end of four years, and to the degree of Graduate in Architecture in the SCHOOL OF ARCHITECTURE, at the end of six years.

Required: Group II.

Recommended: Latin (6a and 6b) and French (15a²).

Chemistry: leading to the degree of Bachelor of Science in the COLLEGE OF CHEMISTRY.

Required: Group II.

Recommended: German (15b²) or French (15a²).

Commerce: leading to the degree of Bachelor of Science in the COLLEGE OF COMMERCE at the end of four years, and to an advanced degree in the SCHOOL OF COMMERCE at the end of five years.

Required: Group I.

Recommended: modern foreign language; additional mathematics.

RECOMMENDATIONS FOR THE VARIOUS CURRICULA
UNIVERSITY OF CALIFORNIA

Dentistry: leading to the degree of D.D.S. in the COLLEGE OF DENTISTRY.

Required: 45 units, including physics (11) or chemistry (12b).

Of the required 45 units at least 36 must be selected from subjects 1 to 17 inclusive; see list of preparatory subjects on page 10.

Recommended: Group I.

Economics: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: additional foreign language.

Engineering (Chemical, Civil, Electrical, Gas, Irrigation, Mechanical, Mining [including Economic Geology and Petroleum Engineering], Railroad, Sanitary): leading to the degree of Bachelor of Science in one of the ENGINEERING COLLEGES.

Required: Group II.

ENGLISH: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: Latin (6, 7) and Greek (8, 9).

Forest Utilization: leading to the degree of Bachelor of Science in the COLLEGE OF AGRICULTURE at the end of four years.

Required: Group II.

German: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: French or German; Latin is desirable.

History: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: Additional foreign language.

Home Economics: leading to the degree of Bachelor of Arts with a group elective or major subject in Household Art, or in Household Science.

Required: Group I, with Chemistry (12b).

Recommended: Physics (11), Freehand Drawing (16), Industrial Art (18c, 3 units; 18d, 6 units).

Languages—Classics, Latin, Greek: leading to the degree of Bachelor of Arts.

Required: Group I, with Latin (6).

Recommended: advanced Latin (7), Greek (8, 9), and Ancient History (10).

To delay advanced Latin until the University is reached will make it exceedingly difficult, though not impossible, to do any considerable amount of major work in Latin.

RECOMMENDATIONS FOR THE VARIOUS CURRICULA
UNIVERSITY OF CALIFORNIA

Other languages: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: Latin (subjects 6, 7), or Greek (8, 9), and French (15a²), or German (15b²).

Law: (A) leading to the degree of Bachelor of Arts in the COLLEGE OF LETTERS AND SCIENCE at the end of four years and to the degree of J.D. in the SCHOOL OF JURISPRUDENCE at the end of six years.

Required: Group I.

Recommended: physics (11) or Chemistry (12b), Latin (6), U. S. history (5) and English history (13b).

A full statement of the requirements for the professional courses in law will be found in the Announcement of the School of Jurisprudence.

(B) Leading to the junior certificate in the COLLEGE OF LETTERS AND SCIENCE, ordinarily at the end of two years and to the degree LL.B. in the Hastings College of the Law (San Francisco) at the end of three years following the junior certificate.

Required: Group I.

For further information see the Annual Announcement of the Hastings College of the Law.

Mathematics: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: advanced mathematics (4a, 4b, 12a²).

Medicine: leading to the degree of M.D. in seven years, or to the degree of Bachelor of Arts in the COLLEGE OF LETTERS AND SCIENCE and M.D. in the MEDICAL SCHOOL in a combined course of eight years.

Required: Group I, with physics (11) and chemistry (12b).

Recommended: advanced mathematics (4a, 4b, 12a²), Physical Chemistry, German (15b²) or French (15a²), freehand drawing (16).

A full statement of the prerequisites for the Course in Medicine will be found in the Announcement of the MEDICAL SCHOOL.

Pharmacy: (A) leading to the degree Ph.G. (Graduate in Pharmacy) at the end of a course of two years in the CALIFORNIA COLLEGE OF PHARMACY.

Required: Two years of approved high school work or its equivalent.

(B) leading to the degree of Ph.C. (Pharmaceutical Chemist) at the end of a course of three years in the CALIFORNIA COLLEGE OF PHARMACY.

Required: Graduation from an approved high school course of four years or an equivalent preparation.

(c) leading to the degree of Phar.B. (Bachelor of Pharmacy) at the end of a course of four years in the CALIFORNIA COLLEGE OF PHARMACY.

Required: Graduation from an approved high school course of four years or an equivalent preparation.

RECOMMENDATIONS FOR THE VARIOUS CURRICULA
UNIVERSITY OF CALIFORNIA

Philosophy: leading to the degree of Bachelor of Arts.

Required: Group I.

Political Science: leading to the degree of Bachelor of Arts.

Required: Group I.

Public Health: (A) leading to the degree of A.B. in the COLLEGE OF LETTERS AND SCIENCE at the end of four years and to the degree of Graduate in Public Health (Gr.P.H.) in the GRADUATE DIVISION at the end of six years.

Required: Group I with Physics (11) and Chemistry (12b).

Recommended: Advanced Mathematics (4a, 4b, 12a²), German (15b²), or French (15a²), Freehand Drawing (16).

(B) Leading to the degree of B.S. in the COLLEGE OF CIVIL ENGINEERING (curriculum in sanitary engineering) at the end of four years and to the degree of Gr.P.H. in the GRADUATE DIVISION at the end of six years.

Required: Group II.

(C) Leading to the degrees of M.D. and Gr.P.H. in seven years; or to the degrees of A.B. and Gr.P.H. in the COLLEGE OF LETTERS AND SCIENCE and M.D. in the MEDICAL SCHOOL in a combined course of eight years.

Required: Group I, with Physics (11) and Chemistry (12b).

Recommended: Advanced Mathematics (4a, 4b, 12a²), German (15b²), or French (15a²), Freehand Drawing (16).

Romanic Languages: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: French (15a²) or Spanish (15c², 15c³) or German (15b²); Latin is strongly advised.

Sciences (Anatomy, Astronomy, Botany, Biochemistry, Chemistry, Geography, Geology and Mineralogy, Hygiene, Palaeontology, Pathology, Physics, Physiology, Psychology, Zoology): leading to the degree of Bachelor of Arts.

Required: Group I, with chemistry (12b) and physics (11).

NOTE.—Physics is recommended but not required for students who intend to specialize in zoology.

Recommended: Advanced mathematics (4a, 4b, 12a²), German (15b²) or French (15a²).

Slavic Languages: leading to the degree of Bachelor of Arts.

Required: Group I.

Recommended: French (15a²) or German (15b²).

TIME ALLOTMENT IN HOURS PER WEEK FOR THE
ELEMENTARY SCHOOLS

GRADE	1	2	3	4	5	6	7	8
English and Penmanship.....	10	10	10	10	10	9	8	8
Arithmetic.....	2	3	5	5	5	5	4	4
History and Geography				5	5	5	5	1st term 5
Civics and Hygiene.....								2nd term 5
Nature Study, Physical Training, and Hygiene.....	1	1	1	1	1	1	1	1
Music (Vocal) Band, or Orchestra).....	2	2	2	2	2	2	2	2
Drawing.....	1	1	1	1	1	1	2½	2½
Manual Training or Cooking and Sewing..	1	1	1	1	1	2	2½	2½
Foreign Language..... (Latin, French, German, Spanish) Optional.....							5	5
Unassigned.....	3	2						
TOTAL.....	20	20	20	25	25	25	25 or 30	25 or 30

[2M, 12, '16]



DEPARTMENT OF
PUBLIC INSTRUCTION
OAKLAND CALIFORNIA

COURSE *of* STUDY

HIGH SCHOOLS

BOARD *of* EDUCATION BULLETIN

NUMBER 5

DECEMBER, 1916

OUTLINE OF COURSES OF STUDY FOR THE HIGH SCHOOLS

	<p style="text-align: center;">COURSE I</p> <p style="text-align: center;">College Preparatory Course</p> <p>Preparatory to the University of California in the College of Letters and Science (the college of general culture) and the College of Commerce.</p>	<p style="text-align: center;">COURSE II</p> <p style="text-align: center;">College Preparatory Course</p> <p>Preparatory to the University of California in the Colleges of Mechanics, Mining, Civil Engineering, and Chemistry and the course in Architecture.</p>	<p style="text-align: center;">COURSE III</p> <p style="text-align: center;">Elective Course</p> <p>The elective course is not preparatory to the University. At least three years' work in each of three of the following groups of subjects is required for graduation: English, History, Mathematics, Foreign Languages, Science, Home Economics, Commercial, Music, Drawing, and Mechanic Arts.</p>	<p style="text-align: center;">COURSE IV</p> <p style="text-align: center;">Stenographer's Course.</p>
FIRST YEAR	English Algebra Foreign Language, Ancient or Modern Elective	English Algebra Foreign Language Freehand Drawing	English Elective Elective Elective	English Bookkeeping Spelling and Commercial Arithmetic Penmanship Elective
SECOND YEAR	English Plane Geometry Foreign Language, Ancient or Modern Elective	English Plane Geometry Foreign Language Geometrical Drawing	English Elective Elective Elective	English Typing I Stenography I Elective
THIRD YEAR	Elective Elective Elective Elective Of the third and fourth year electives, two units must be taken from the following: adv. mathematics, additional foreign language, laboratory science of third or fourth year.	English or Foreign Language Chemistry Mathematics Elective	English Elective Elective Elective	English Typing II Stenography II Elective
FOURTH YEAR	U. S. History and Government +Science Elective Elective	English or Foreign Language U. S. History and Government Physics Mathematics	U. S. History and Government *Science Elective Elective	U. S. History and Civics Commercial Law 1/2 *Science Stenography and Office Practice Elective 1/2

† May be taken in the third year.

* May be taken in any year of the course.

OUTLINE OF COURSES OF STUDY FOR THE HIGH SCHOOLS—Con.

	COURSE V Industrial.	ELECTIVES
		In choosing Electives, pupils preparing for College or higher schools should consult the admission requirements of the institutions which they propose to enter.
FIRST YEAR	English Drawing Mathematics Shop, 20 hours	Commercial: Typing I, Penmanship, Spelling and Commercial Arithmetic, Bookkeeping I. Drawing: Freehand and Mechanical. History: Ancient History, General History. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Algebra I, Shop Mathematics. Mechanic Arts: Shop, ten to twenty hours. Music: Choral I or II, Band, Orchestra. Science: Physical and Commercial Geography, General Science, Botany.
SECOND YEAR	English Drawing Mathematics Shop, 20 hours	Commercial: Bookkeeping I or II, Stenography I, Typing I. Drawing: Freehand, Mechanical, Design. History: Ancient History, General History, Mediaeval and Modern History. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Plane Geometry, Shop Mathematics, Algebra I. Mechanic Arts: Shop, ten to twenty hours. Music: Band, Orchestra, Choral I or II. Science: Botany, Biology.
THIRD YEAR	Economics Industrial Physics Shop, 20 hours	Commercial: Stenography I or II, Typing I or II, Bookkeeping I or II, Salesmanship $\frac{1}{2}$, Advertising $\frac{1}{2}$. Drawing: Freehand, Mechanical, Design. English: English III, Argumentation, Public Speaking. History: English History, Mediaeval and Modern History, Economics. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Algebra I, Plane Geometry, Solid Geometry $\frac{1}{2}$, Trigonometry $\frac{1}{2}$, Advanced Algebra A $\frac{1}{2}$. Mechanic Arts: Shop, ten to twenty hours. Music: Harmony, Band, Orchestra, Choral I or II. Science: Chemistry, Physics, Biology, Physiology and Hygiene, Botany.
FOURTH YEAR	U. S. History and Civics Elective Shop, 20 hours	Commercial: Stenography I or II, Typing I or II, Bookkeeping I or II, Advertising $\frac{1}{2}$, Commercial Law $\frac{1}{2}$, Accounting $\frac{1}{2}$. Drawing: Freehand, Mechanical, Design. English: Argumentation, English III or IV, Public Speaking. History: Economics. Home Economics: Domestic Science, Domestic Art. Languages: French, German, Latin, Spanish. Mathematics: Plane Geometry, Advanced Algebra A $\frac{1}{2}$, Advanced Algebra B $\frac{1}{2}$, Solid Geometry $\frac{1}{2}$, Plane Trigonometry $\frac{1}{2}$, Shop Mathematics. Mechanic Arts: Shop, ten to twenty hours. Music: History of Music, Harmony, Composition, Band, Orchestra, Choral I or II. Science: Physiology and Hygiene, Physics, Chemistry, Botany, Biology.

MINIMUM REQUIREMENTS OF THE STATE BOARD OF EDUCATION FOR GRADUATION FROM THE REGULAR TEACHER'S COURSE IN A STATE NORMAL SCHOOL.

The following table shows the minimum number of units of each subject required of graduates of the state normal schools. Note that some of these courses *must* be taken at the high school; others *may* be taken at either the high school or the normal school:

General Requirements.	Units
*English Literature and Language, including grammar, composition and oral expression.....	2
*Physical Science—One year of general science, including the applied elements of physics, chemistry and physical geography, or one year of physics or chemistry or physical geography, provided that for students entering after June 30, 1918, the general science shall be prescribed.....	1
Biological Science, including physiology, hygiene and sanitation..	1
*History of the United States and Civics, including local and state government	1
*World History	2
Drawing and Painting, including applied design.....	1
Music, including sight reading, two-part singing, and elementary harmony	1
Manual Training or Household Arts, or both; provided, that for students entering after June 30, 1918, one unit shall be required	1/2
Elements of Agriculture, including practical work in gardening, floriculture and plant propagation; provided, that for students entering after June 30, 1918, one unit shall be required	1/2
*Mathematics, including general mathematics or the applied elements of algebra or plane geometry, or commercial arithmetic	1
Professional Requirements.	
**Elements of Applied Sociology, including the study of institutions and social organizations, rural life and rural school problems	1/2
**Education, including a study of the school as an institution and the curriculum, general psychology applied to education and general method	1
**Practice Teaching and Special Methods which shall familiarize the student with and give him a mastery of the state series of textbooks, and which shall in addition thereto include special methods in all of the required statutory subjects; provided, that at least one (1) unit shall be given to practice teaching and at least one-third of the total time given to practice teaching shall be in a classroom, by the classroom method and under direct supervision.....	2 3/4
**The California School System, School Law, and their development	1/4
**Physical Education, Athletics, Play, School Playground Equipment, and Indoor and Outdoor Recreation.....	1/2
Possible Electives	8
Possible Electives for those entering after June 30, 1918.....	7
Minimum units required for graduation.....	24

*Must be taken in a high school

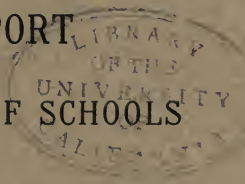
**Must be taken in a normal school.

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DEPARTMENT OF
PUBLIC INSTRUCTION
OAKLAND CALIFORNIA

INFORMATION SERVICE
AS
DEVELOPED
IN THE
OAKLAND SCHOOLS

PART V
OF
A GENERAL REPORT
BY THE
CITY SUPERINTENDENT OF SCHOOLS
1913-1917



BOARD OF EDUCATION BULLETIN
NUMBER 13
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INFORMATION SERVICE

AS

DEVELOPED

IN THE

OAKLAND SCHOOLS

BY

WILFORD E. TALBERT

DIRECTOR OF REFERENCE AND RESEARCH

WRITTEN FOR

A GENERAL REPORT

OF THE

CITY SUPERINTENDENT OF SCHOOLS

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June 29, 1917

PREFACE.

If it is true, as someone has said, that the watchword of the present age is "service," it is no less true that the keynote of success in modern organization is "information service." The factory has its "efficiency expert," the shop its "planning department," the army its "intelligence bureau," and the public service corporation its "publicity division."

The two chief reasons why such departments are maintained as a part of the overhead expenses are (1) that business men of keen insight have learned that "it pays to advertise," and (2) that wise administrators have learned that it is impossible to manage a concern of any considerable size without some basis for executive decision other than personal observation.

It is not surprising, then, that progressive boards of education and superintendents of schools have caught the spirit of the time and have established "efficiency bureaus," "departments of research" and other similar agencies for gathering and digesting information. Keeping the public informed of the needs and policies of the schools is just as important to successful school administration as advertising is to successful business management, and educational conditions in cities much smaller even than Oakland are far too complex to be managed by a single man unaided by some fact gathering device.

The aim of this little bulletin is to outline in a general way what the Oakland school department has attempted to do during the past four years, with the hope that it may prove helpful to other cities who have not yet gone through the interesting experience of pioneering in this field. Also, if a little clearer idea of the work which the superintendent has been trying to accomplish may be brought to the attention of the officers and patrons of the local schools, the publication of this report will not have been in vain.

The writer is indebted to Superintendent of Schools A. C. Barker for the constant inspiration and suggestions given to the working out of the plans herein described and to the members of the Principals' Club who have always been so ready to cooperate both in devising new plans and in seeing that they were carried out.

WILFORD E. TALBERT,
Director of Reference and Research.

Oakland, California, June 29, 1917.

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CHAPTER I.

THE MEANING AND VALUE OF INFORMATION SERVICE.

This is an age of efficiency, an age of economy, an age of investigations and surveys. Whatever may have been the factors responsible for this situation, or whatever we may think about these movements, they are with us and with us to stay.

Efficiency and economy. Though popularly used in many different senses, the words "efficiency" and "economy" both imply the same thing, namely, the "one best way of doing things"—not "your way," or "my way," but the way established by scientific experiment. There was a time when "your way" or "my way" were the "right ways," depending upon who you or I might be, but that time has passed. There was a time when all men thought the earth was flat, but it never affected the earth any. Many people thought a world war was not possible, but it was. Also men have been sure that they could beat trains to the crossing, but they couldn't. In fact, over and over again we prove to our sorrow that our mere mortal opinions about things have very little to do with the truth in the matter.

Efficiency is founded upon the principle of discovering natural laws and then obeying them. It is a natural law that a body heavier than air will fall to the earth unless suspended by some power that will overcome gravity. This law is independent of the opinion of anyone; it works every day in the year; and no one needs to try it out for himself in order to have a reliable basis for conduct. He who abides by the findings of others in this regard will to that extent be efficient and economical.

Experimentation. The discovery of natural laws is not always easy—particularly in the realm of sociology, political economy, education, and those other sciences in which the human factor is an important element of every problem. Nevertheless, the difficulty of the discovery is not an excuse for continuing to disobey the law. If we are to become efficient in the administration of public affairs it is just as important for us to experi-

ment to find the "one best way" as it is for the chemist to find the best way of treating crude oil so as to make the most money for his employer.

We need not be afraid of "experimentation" in public affairs just because it is called by that name. We have always experimented. We have for years tried to get expert service by popular election, and we shall probably continue the experiment a few years longer. For years we have tried to drive all children through the same curriculum at the same rate of speed, and we will probably keep on doing it awhile longer. In fact, we waste lives by the millions and money in untold millions simply trying to do the wrong thing in the hope that if we keep it up long enough we will some day meet with success. How much wiser it would be to spend a few hundreds of dollars—even a few thousands of dollars, if need be—on well controlled experiments that might settle such questions for all time.

Information service. Such is "information service." It is the gathering of facts for the solution of our problems. It is the critical treatment of those facts with a view to finding the extent to which they are applicable. It is the publication of those facts so that others may assist in the solution of the problems or may share in the results of the discoveries made.

The value of information service. The specific values of information service depend upon the requirements of those who will profit thereby. In general, the following may be stated as the most important functions of such service in the administration of the public schools:

1. To show need on the one hand or extravagance on the other;
2. To show success or failure of policies, the wisdom of which has not yet been scientifically demonstrated;
3. To point out the necessity for new or different policies;
4. To furnish a reliable basis for intelligent public discussion;
5. To satisfy the curiosity of those who want facts only for facts' sake, or for their historical value.

What facts are most important. As in the case of a commercial or industrial establishment, those facts are of greatest importance which show the results attained and their relation to the cost of producing them. The "results" in this case are improvements made in the plastic lives of growing boys and

girls, and the "cost of production" includes far more than the money expended for labor, material, and overhead charges. It includes the time spent by the children themselves and the sacrifices made by their parents to keep them in school.

Who need information. The following classes of people need information about the schools:

1. Those who administer the schools;
2. Those who are responsible for the instruction;
3. Those who levy the taxes;
4. Those who pay the bills;
5. Students who are trying to improve school administration through research.

Kinds of information needed. The following kinds of information are needed:

1. Statistics, analyzed in the light of the purpose for which gathered, and made intelligible to the persons who need the facts;
2. Descriptive reports, where figures are inadequate;
3. Pictures, charts, plans, specifications, etc, illustrative of the first two classes of facts.

All information should be up-to-date, complete, and reliable.

CHAPTER II.

INFORMATION SERVICE IN THE OAKLAND SCHOOLS.

The proper organization. Efficiency experts in many lines are agreed that one of the first essentials in getting the best possible results is a reorganization along functional lines—that is, all officers performing a given function are grouped together for administrative purposes.

In line with this practice, it is customary to first organize the information service, which is the basis for all later reorganization. Sometimes an old department, such as the accounting department, is “made over,” but quite as often a new department is created.

Oakland’s Service Bureau. As the first step in the establishment of an efficiency organization in the Oakland school department, the superintendent recommended the creation of what he termed a “bureau of information, statistics, and educational research,” and his recommendation was adopted by the Board of Education to take effect on July 1, 1914.

Prior to that date not more than five such bureaus were in existence, and not more than three of these had been in operation for as long as six months. It was hence no easy matter to decide just what such a bureau should do or how it should go about it. The following, however, were laid down as the chief functions:

Functions. 1. To have charge of all reports from the schools and from all departments (formerly the function of an assistant superintendent), and to be responsible for compiling the annual statistical reports ordinarily required of the superintendent of schools.

2. To keep in some systematic order all information gathered, and to answer all questionnaires and the requests of the public, the superintendent, or the Board of Education for the same.

3. To have charge of the publication of information relative

to the schools, and to prepare from time to time articles bearing on important phases of the school department's activities.

4. To supervise the conducting of all investigations in the school department except those made by other officers or other persons employed by the Board of Education, and to conduct such personal investigations as time would permit.

5. To have charge of the professional library of the Board of Education and to encourage its use by principals and teachers and prepare data for articles or bibliographies for addresses or other purposes on request of the Board members, the superintendent, or other school officers.

6. To encourage educational research and improvement in service on the part of the teaching body.

7. To have no authority over any other school officers, but to make recommendations to the superintendent wherever improvement seemed possible.

Chief activities. Unfortunately, these functions were only mutual understandings between the director of the bureau and the superintendent, and the Board of Education knew little or nothing of the broader scope of the department or of its importance in the school system as a whole. It soon developed that mere clerical routine and the compiling of the required reports were allowed to crowd out the more important duties, and gradually the clerical assistance formerly given the assistant superintendent of schools was taken away until the director of the bureau, a typewriter, and a filing cabinet constituted the entire working force and equipment of the office.

In spite of these handicaps and discouragements, however, a small amount of really professional work was accomplished.

The Principals' Study Club. On the theory that no information would be worth while unless it became effective in improved school conditions, and on the theory that more practical results would be attained by their co-operation, the director called together the school principals and made a proposition to them which resulted in the formation of a "Principals' Study Club." This club was to be open to principals only, and, while acting as a means of bringing these officers together in a social way, was to confine its activities primarily to research and investigation.

The Oakland spelling investigation. The first important work of this club was the conducting of a city-wide investigation

of the teaching of spelling, the aid of Professor J. B. Sears of Stanford University being secured in addition to the general oversight furnished by the director. This investigation took into account, not merely ability to spell the words on a standardized list, but many of the factors entering into the individual difficulties of pupils—sex, general ability, nationality, social status, father's occupation, personal ambition, language spoken at home, time given to study and to recitation, teaching method, and other factors of lesser importance.

However, notwithstanding the fact that teachers and principals throughout the city had enthusiastically co-operated in the study, and notwithstanding the fact that more than sixty college students of education had donated from three days to three months of their time and railroad fare from Stanford University (over 60 miles away), and that most of the work done by Professor Sears received no compensation, and notwithstanding the fact that the early reports of the study had been widely commented on in the leading educational periodicals, it was nearly a year before the Board of Education consented to the printing of the complete report* and then only on condition that it be sold to cover the cost of printing. This action of the Board so dampened the enthusiasm of the Principals' Study Club that its former plan of intensive study of each subject of the curriculum was informally abandoned, and its activities have since been confined to the discussion of current educational topics and to such minor matters for investigation as have been referred to it by the director of reference and research (the title given to the former "director of the bureau of information, statistics, and educational research" on July 1, 1916).

"Facts and Figures." On taking up the work of the new bureau, the director found, as is the case in most cities, that information for the current year was about all that was available and that even that was confined to reports required by law as a prerequisite to receiving state and county apportionments. On the suggestion of the superintendent of schools, he therefore early began a careful survey of all old records and reports not only in the offices of the Board of Education, but in county and city offices as well. He found as many as three different figures for the

*Spelling Efficiency in the Oakland Schools (79 pages). Price 25 cents.

average daily attendance in a single year (presumably, because incorrect copies had been preserved along with corrected reports); he found that thousands of dollars had been expended by both city and county treasurers for school bonds and other purposes, and that no record whatever of these expenditures were available in the offices of the school department; he found no signs anywhere that the Board of Education was aware of such information as the cost of insurance in proportion to the amount received from insurance, or the cost of constructing buildings by bonds as compared with a well planned building program that would meet the requirements of the schools regularly from current funds without increasing the tax rate. He found that a unique promotion system whereby either classes or individuals might be promoted at any time of the year had been in existence for at least fifteen years, but that no one in the department knew whether or not the average pupil finished the eight grades in normal time.

These and many other similar conditions (which probably exist in all cities) led to the planning of a careful survey which was to be issued in two volumes dealing respectively with business and financial statistics and with educational statistics. "Facts and Figures—Volume I," was completed in typewritten form and has been in constant use ever since. It furnished the data for the Oakland survey by Professor Cubberley¹ and was even mentioned in the annual report of the United States Commissioner of Education for 1914², but it seemed impossible to get the Board of Education to even glance over the typewritten copy, to say nothing of ordering it printed. It was not until May, 1917, as the director was taking a leave of absence from the department that the copy was finally bound in permanent form for future reference. For lack of clerical assistance and because of the fate of Volume I, close to fifty pounds of material, on which over 600 principals and teachers spent from one to three weeks each in anticipation of receiving the expected Volume II, is still stored in the basement of one of the local school buildings—now out-of-date, good only for the paper mill.

¹ Report of the Oakland School Survey (48 pages). Price 10 cents.

² See U. S. Com. of Ed. Rept. 1914, Vol. I, p. 594.

Conclusion. We shall end this chapter here, not because this ends the history of the bureau of information, statistics, and educational research, but because we want to turn over a new leaf and write in a different mood for the rest of this volume—for this marks the end of our discouragements and the beginning of our successes. We write all this, not because we have had to work with an unappreciative Board and Superintendent, but because we wish to save others the kind of experience which we have had. Oakland has had, and still has, as fine a Board and Superintendent as could be found anywhere, for proof of which statement it is only necessary to point to their achievements of the past few years. *The fault lay not with the people concerned, but with our way of getting started.* Our advice to any superintendent who contemplates organizing a bureau of information service is:

1. Take the Board of Education into your confidence before you organize;

2. Make the functions and relations of the new bureau a matter of official record before even securing the director;

3. See that ample appropriations are made for clerical assistance and for printing;

4. Last of all, get the director, and get the right man for the job you have mapped out.

CHAPTER III.

COLLECTING INFORMATION.

As stated in the conclusion of the last chapter, we have turned a new leaf. Our good fortune came about in an unexpected way. On July 1, 1916, the director of the bureau of the long name asked for a shorter title and shorter working hours so that he might complete his work at the university for the doctor's degree. This necessitated the securing of clerical assistance for the routine work of the office with the result that its working force was doubled without any notable increase in the salaries paid. It also afforded an excuse for the securing of outside help in the tabulation of information.

Plans for mechanical tabulation. During the spring of 1916, the writer received from New York City a copy of the report of the superintendent of schools in which was described the mechanical system of tabulation which had been worked out by Dr. B. R. Buckingham, chief statistician of the New York schools. He immediately drew up a plan for a similar system in the Oakland schools, but, though it was favorably recommended by the efficiency expert of the Civil Service Board who was investigating the school organization at that time, it received no official recognition and no place in the budget for the new year. It was not until August that, with the co-operation of Mr. C. W. Stoddard of the Tabulating Machine Company and Mr. J. J. Anderson of the Tabulating Service Company, both of San Francisco, that a free demonstration of machine methods was officially invited by the Board of Education.

Mechanical superiority demonstrated. On August 30th, 1916, the Board of Education authorized the Director of Reference and Research to study three different methods of collecting statistics as follows:

1. The old system whereby teachers' reports are collected and tabulated by the principals and then consolidated in the superintendent's office;
2. The mechanical tabulating system whereby all teachers' reports are checked for accuracy and then turned over to the Tabulating Service Co.;

3. A third method whereby all consolidating is done by clerks in the central office, thus relieving the principals of the routine.

Each method was studied from the standpoint of (1) speed, (2) accuracy, (3) availability of results, and (4) costs.

The material used was the statistics for an entire school month.

Results of the test. The test showed that

1. **With respect to speed**, the other duties of the principals and the errors in calculations made by both teachers and principals rendered it **practically** impossible to get final and reliable data until four weeks after the close of the school month. The Tabulating Service Company, on the other hand, tabulated more than twice as much information as the principals, and submitted in just two and one-half days from the time they received the data from the teachers, a typewritten report in which both calculations and typing were *mechanically* checked for errors. As to the third method, it was reckoned that it would take no less than five clerks to compete with the machines and that the human possibility of error would still be present.

2. **With respect to accuracy**, a very large percentage of the principals' reports contained errors, two had to be made over, and one principal brought in a whole page of corrections just 20 days after the close of the month. Each change in the attendance column on which school money is based necessitated 16 changes in the office records, if all corrections were entered, and, had the office relied on the correctness of the first figures, all data previously given to the Board of Education, the Superintendent, and the public would have been rendered subject to change. By the mechanical tabulation system, the reports were still no more correct than the original data, but all mistakes due to copying and computation were reduced to a minimum. After diligent search and comparison of reports, just one error was found in the report of the Tabulating Service Co., and that was due to the illegible writing of a teacher.

3. **With respect to availability of results**, it was found that the principals' reports yielded only certain pre-determined totals or averages, and that the same information had to be entered twice, with all of the possibilities for error in copying and tabulation, in order to get two different classifications of the data

originally submitted by the teachers. On the other hand, the mechanical method revealed an almost limitless number of possible classifications, and the Tabulating Service Co., just to prove this, made up in less than half a day five difficult tables so complicated that our office with its limited clerical force could not even attempt them.

4. **With respect to cost in time and money**, the old methods took an average of 3% of the average principal's total working time and cost the school department \$177.15 per month in salaries. The mechanical method, which has since been adopted by the Board, costs \$25.00 per month for the services of the Tabulating Service Co. and less than \$4.00 per month for clerical work in the Superintendent's office, besides relieving the principals of the schools of practically all of their former clerical routine.

Advantages of the tabulating machine system. The advantages of the tabulating machine system, as summarized in a mimeographed report submitted to the Board of Education on September 29th, 1916, are as follows:

1. Information gathered in time to be of use.
2. All errors in computation and copying eliminated.
3. Simplifies reports to original data only.
4. Makes it possible to use every figure on every report.
5. Material is gathered once only.
6. Material taken only from original sources.
7. Statistical work all done by specialists at a central office.
8. Makes possible greater variety of reports without additional labor.
9. Makes possible special studies which cost of ordinary clerical help would make prohibitive.
10. Eliminates necessity for gathering data just because it "might possibly be needed."
11. Saves time, money, clerical force, and filing space.

The tabulating system described. By way of digression, a brief description of the tabulating machine may not be out of place.

Electrical tabulating machines were first used by the United States Census Bureau in 1893 and it was not thought until several years afterward that they were adaptable to statistical work on any smaller scale. However, public service corporations and

other commercial and industrial establishments have gradually made use of them until they are now very commonly used throughout the country by most concerns having a large amount of statistical work to do. In fact, it is not uncommon to find even ordinary bookkeeping done in this way.

There are several kinds of electrical tabulators, but the one which we have used, and which is in use in most of the large city school departments, is the Hollerith, which is made by the Tabulating Machine Company of New York City. Its equipment consists of a key punch (Fig. 1) for entering information onto uniform cards, a sorting machine (Fig. 2) which segregates cards into any desired classification, and a tabulating machine (Fig. 3) which adds as many as ten columns at a time at the rate of about 150 items (in each column) per minute. The Tabulating Service Co. also uses a typewriter with an adding device so that even its written reports are mechanically checked with those of the tabulating machine. The equipment is not sold, but is rented at rates varying around \$75 per month, depending upon the size and capacity, for the entire outfit.

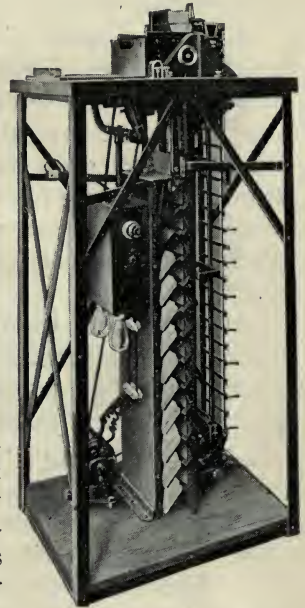


Figure 2. Sorting Machine.

It is estimated that any concern having as many as 60,000 items of information per year may well afford to rent the machines in lieu of ordinary clerks. The advantages of the system are so many, however, that service bureaus are springing up in the larger cities for the benefit of those small concerns which cannot afford the machines themselves. The service company which does our work also does all of the regular statistical work for a large number of insurance companies and other smaller concerns of the Bay region. It is a suggestion worth thinking about that there is enough statistical work in the various departments of city and county governments that by co-operating in service bureau fashion, the old slow, inaccurate, and inadequate hand method of compiling information might be practically eliminated from all public offices.

Records and reports. To return to the subject of methods of gathering information, it may be stated that data are generally collected from two sources—records and reports. In the past, facts other than those gained by personal observation have played but little part in school administration and hence records and reports were largely confined to items required by law.

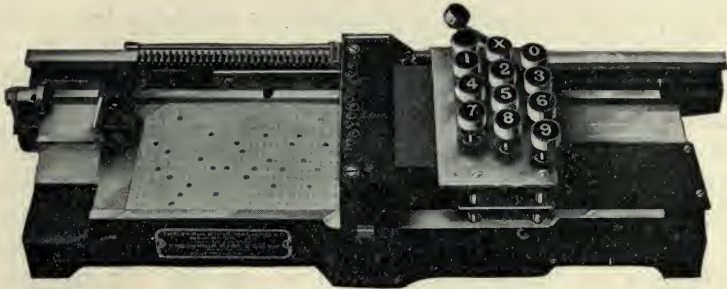


Figure 1. Key Punch.

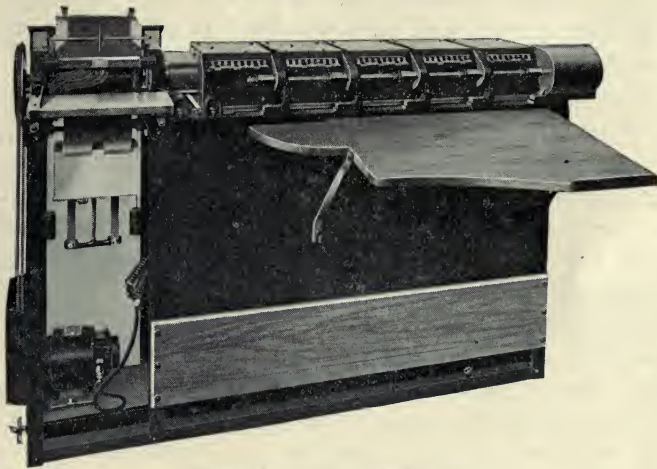


Figure 3. Tabulating Machine.

Since laws vary, statistics also vary, not only in different localities but in the same locality from year to year. For example, even a fairly stable item like average daily attendance does not mean the same in California now as it did three years ago; neither do all cities in California always interpret the present ambiguous law in the same manner. The result is that even the best of record systems are worth but little as ordinarily administered. These and other faults of the old reports coupled with the importance of reliable information, led the superintendent to urge as one of the chief duties of the Director of Refer-

ence and Research the revision of all forms in use in the school department.

Improvements in reporting. In accordance with the request of the superintendent, the Director has repeatedly called upon the Principals' Club (the Principals' Study Club also decided to shorten its title) to appoint committees to consider what might be done to improve conditions. In general, the following changes have resulted from such conferences:

1. Many unnecessary or unreliable reports have been dispensed with.

2. Several reports which are really in the nature of special investigations have been temporarily discontinued. For example, if the sole purpose of a report is to show the success or failure of a given policy, it is folly to keep requiring the report after a satisfactory conclusion has already been reached. It may probably be said without successful contradiction, that *so far as practical administration is concerned*, very few items of information need to be repeated from year to year.

3. From time to time, special reports have been temporarily added for specific purposes.

4. Such reports as are worth while have been reduced to compact form; every conceivable automatic check for accuracy has been devised, provision is made for the reporting of a given item once and once only; all copying, calculations, and computations are left to clerks in the central office; as far as possible teachers have been notified several weeks in advance of reports that would be expected; special reports have been called for at less busy seasons; term and annual reports have been compiled at the central office from data already submitted; and definitions of terms, methods of keeping records, etc., have been thoroughly standardized. One of the most interesting ideas developed was that advanced by Mr. W. A. Hammond, assistant attendance officer, which provides for the making of statistical reports, transfers, text-book orders, etc., in books made up like ordinary salesmen's check books.

The faults of ordinary school accounting. From the standpoint of the efficiency expert, the ordinary school accounting system is one of the most wasteful and useless parts of the entire school organization, yet the general public probably regards it as the most indispensable.

The function of ordinary school accounting is to *keep* financial records, not to *give* information. It is also founded on the false assumption that dollars and cents are the most valuable things with which the school has to deal. It shows to the cent the money received or disbursed, but it makes no record of the real cost of conducting the schools (the amount of total obligations, whether paid or not); it shows no statement of assets, capital, and liabilities, and no record of depreciation; and it takes no account of interest on capital invested. It keeps track of cash to the cent, but keeps no account of supplies and equipment which are worth thousands of dollars; it keeps track of dollars even to the point of making every fund balance, but it can tell nothing of what becomes of the hours of service that are worth millions of dollars; it shows what becomes of our taxes, but it utterly fails to show what becomes of our boys and our girls; it shows what we spend for teachers' salaries, but not what we spend for a given degree of arithmetical ability; it shows what we receive from the taxpayers in cash, but not what we take from the lives of boys and girls in health and in wasted years; it shows what we spent, but not how well we spent it; it shows whether we spent more or less, but not how much we should have spent—in fact, of the things about a school system which most need to be accounted for, the ordinary school accounting system shows absolutely nothing.

Improvements made. But, granted that a school accounting system ought to keep track of receipts and disbursements, it has a poor excuse for existence unless it keeps these records in such a manner that even that limited amount of information can be readily obtained. The superintendent of schools, in co-operation with other officers concerned, has hence developed a new system of keeping such records so that the accounting office becomes a part of the information service of the school department. The new system took effect on July 1, 1914, and with some changes in the forms of books kept has remained substantially as then devised. The following are among the most important improvements made.

1. Accounts are now kept so as to show the *purpose* for which expenditures are made, rather than merely the fund from which they are paid.

2. Accounts are set up so as to agree with the schedule recommended by the United States Commission of Education.

3. Detailed instructions as to how to charge each account have been furnished to all school officers so that each may help in properly classifying expenditures.

4. Accounts of outstanding obligations are kept as rigorously as actual payments.

5. The budget is made to conform to the accounting system and charges against appropriations are carefully watched so that the budget will not be exceeded.

The library. One other important means of collecting information will be mentioned but briefly in this connection, namely, the Board of Education library. Perhaps no other equally important branch of human activity is undergoing such wholesale change and development at the present time as public education, and no other branch of human activity is in greater need of scientific information than the instruction of the young. The best that is known about such matters is generally issued in current educational periodicals or in published reports of educational societies and organizations. It is important, therefore, that the public school system keep in close touch with this mass of information in order that it may increase its efficiency. Only a small annual appropriation is necessary to keep such a library up-to-date and only a little encouragement and guidance is needed to get school officers and teachers to make use of it.

The Oakland department has made an excellent beginning in this branch of information service, and it will be discussed more in detail in the next chapter.

CHAPTER IV.

MAKING INFORMATION USABLE.

As one of the directors of the recent Cleveland survey pointed out in his report¹, it has, in the past, been customary for school systems to require vast numbers of reports that might some day be needed, and to hoard them up in store-rooms or basements until by sheer necessity they are destroyed to make room for still other useless material.

Among the reasons for this useless waste of time and money are the facts that school officers have too often let laymen dictate what information shall be gathered or that they have not taken time to standardize the information which they themselves will need in their administrative or supervisory duties. And still another cause of waste is that rules of legislative bodies often require information which is of use only to executive officers.

Examples of waste. An example of the latter type of report is the Oakland "corporal punishment report." The rules of the Board of Education have required this report for years, and yet it is primarily a matter that should have been left to the superintendent. But the strangest thing about the report is that, though several cases of trouble over corporal punishment have even been carried to the Board itself, no one, in the last three years at least, has ever asked to see the corporal punishment report.

An example of another type of waste mentioned is the practice of hunting information for anyone who asks it. The average citizen who inquires about the schools doesn't know the difference between average daily attendance and enrollment, and yet the "official representative" of an improvement club will persistently "stand on his rights as a taxpayer" and demand the precise information he has asked for. No pains ought to be spared to give citizens, or anyone else, any information which is really enlightening, but school offices ought not to be cluttered

¹ See C. H. Judd: *Measuring the Work of the Public Schools*, page 53.

up with a lot of useless material just because it is ordered by laymen who do not know how to investigate the schools.

Standardized information service. There is hence a great need for "standardized information service." And this the Oakland school department has sought to render. Among the recent steps taken in this regard are the following:

1. A monthly typewritten statement of the condition of all school funds and appropriations and of the expenses to date is regularly issued by the school accountant to the board members, to the school officers, and to all representative citizens who can really profit by such information.

2. A monthly mimeographed report is published by the Department of Reference and Research and is furnished to all school officers, to all of the individual schools, and to any citizen who requests it. This report is issued within a week after the close of each school month and shows the condition of each and all schools as regards attendance and enrollment in various departments, the number of teachers and pupils per teacher, and the cost per pupil to date. From time to time other items are added, such as distribution of size of classes to show the number and location of excessively large or excessively small classes, the enrollment of the city by grades, etc. This report was made possible by the mechanical tabulation system described in the last chapter. By its use each principal not only keeps track of the progress in his own school, but he knows how conditions in his school compare with those elsewhere in the city. Since starting this standardized report, it is estimated that the saving in time required for answering questionnaires and other requests for information has been lessened enough to far more than compensate for the cost of publishing it. It also has the advantage of being a permanent record of those figures which are considered correct.

But there are other steps in the way of rendering good information service.

Storing information. As already intimated, that information which is not worth while should never be asked for in the first place, and that information which is worth while should be so stored that it can readily be consulted. Information which is already digested in usable form should be filed according to some standard system. That which has not been put into

usable form can be kept most available by being punched on Hollerith cards (see page 16). The cards take little space, they take little time to tabulate, and they save the necessity for digesting the material in the hope that it might be needed. For example, with the Hollerith system it is not necessary to work out the cost per pupil for physics in the Technical High School in the hope that the superintendent might want it. True, he might want it, and then he might not. All that is necessary is to have the original warrants from the Technical High School properly coded in the first place and then to have the data punched on the Hollerith card along with all of the other warrants, which should have been similarly coded to show precisely the purpose of the disbursement.

Information files. A great deal has been written on information files, but very little that applies to such a complicated subject as education where "concretes" and "processes" and "places" and "functions" and all of the other bases of classification vie with one another for supremacy, and where "kinds of schools" and "administrative units" and "Oakland" and "outside of Oakland" all run perpendicular to one another. We commend the job to anyone who thinks he has a logical mind.

During the past year Mr. Leroy Doig, a graduate student in Education, attempted, under the guidance of the Director of Reference and Research, to work out a classification that would be most useful to the administrative officers of a city school system.

Outline of classification. His general classification was as follows:

000 Education in general—Miscellaneous.

- 10 Treatises on Education.
- 20 Educational reports.
- 30 Miscellaneous Publications.
- 40 Serial Publications.
- 50 School legislation.
- 60 Nation—State—City.
- 70 Private organizations.

100 Organization—Administration—Supervision.

- 10 General personnel.
- 20 School systems.
- 30 Educational department.
- 40 Business department.
- 50 Principles of business management.
- 60 Finance.

200 Instruction.

- 10 Teaching process.
- 20 Learning process.
- 30 Course of study—curriculum.

- 40 Gradation—classification.
- 50 Term—program.
- 300 The Teaching Staff.**
 - 10 Appointment—dismissal.
 - 20 Certification.
 - 30 Training of teachers.
 - 40 Professional status.
 - 50 Improvement in service.
 - 60 Salaries.
 - 70 Pensions.
 - 80 Community relations.
- 400 Pupils.**
 - 10 Organization.
 - 20 Control.
 - 30 Scholastic activity.
 - 40 School affairs.
 - 50 Home life.
 - 60 Co-education.
 - 70 Attendance.
 - 80 Child welfare.
- 500 Support of Education.**
 - 10 National aid.
 - 20 State support.
 - 30 Local support.
 - 40 Other sources.
- 600 The School Plant.**
 - 10 Buildings.
 - 20 Grounds.
 - 30 Sanitation—heating—lighting.
- 700 Text-books—Supplies—Special Equipment.**
 - 10 Textbooks.
 - 20 School supplies.
 - 30 Special equipment.
 - 40 Office supplies.
- 800 Auxiliary Agencies—Educational Extensions.**
 - 10 Health department.
 - 20 Attendance department.
 - 30 Playground department.
 - 40 Lecture department.
 - 50 Research department.
 - 60 Child study laboratory.
 - 70 Library—Museum.
 - 80 Educational extensions.
- 900** (Blank for future emergencies.)

In addition to this classification, he also worked out a subject catalog whereby the contents of reports and periodicals would be classified as well as their principal subjects, and which provided for an automatic system of cross-references.

It is proposed in time to extend this system so as to make it apply not only to the library, but to correspondence, to reports of department heads, to statistical tables, and to charts. A beginning has already been made in this regard by the equipping of the office of the Director of Reference and Research with an "efficiency desk" which is provided with cards of uniform size both for statistical tables and for graphs. These cards have been so arranged that comparable data will be entered from year to year on the same card and so that curves can be added to from month to month or from year to year to indicate at a glance what has been the progress of the schools. The forms of the cards and graphs have been planned in such a way as to facilitate the making of blue prints or cuts if desired. Such a system not only saves keeping original cumbersome sheets around, but it also saves the time it takes to consult miscellaneous reports. To the superintendent, it affords a means of getting the biggest view of the entire system with the least expenditure of time and energy.

A mechanical combination file. A recent invention (just patented April 17, 1917) has come to our attention, and Oakland has the honor of being the first school system to install it. It is called the Findex, and does for fairly permanent data what the Hollerith system does for collecting new data. In Oakland, we have used it for recording information about teachers. It consists of a drawer, some perforated cards (See Fig. 4), and some rods. The information from a vast number of ordinary files can all be entered in this single cabinet by means of a card punch, and then any of the data so recorded can be classified in any desired manner by simply running rods through the proper holes. Thus, to get the names and addresses of all teachers in the department who can teach French, or to find the combination of all elementary teachers who have had both normal and university training but who are not teaching in departmental schools and are not living in Oakland, would each be simple mechanical operations requiring but a few seconds to perform. The inventor, Mr. Leo S. Robinson, has his office in the Hearst Building, San Francisco, and will be glad to furnish further particulars or to figure on the requirements of any school officer. The United States War Department has also recently adopted the device for classifying enlisted men (See Fig. 5) and is considering an extension of its application.



Figure 4. Oakland Findex Card.
(For information about teachers.)

Published reports. Just one other innovation need be mentioned in connection with the information service inaugurated in the local schools. No longer does the formidable looking compilation of departmental reports addressed to "Mr....., Superintendent of Schools, Sir: I have the honor," etc., issue from the offices of boards of education of progressive cities. In Oakland this type of report has been replaced by a series of bulletins issued whenever the time seems opportune and including under one cover matter which is likely to be of interest to a particular class of readers,—the taxpayers, the teachers, the parents, or the professional world.

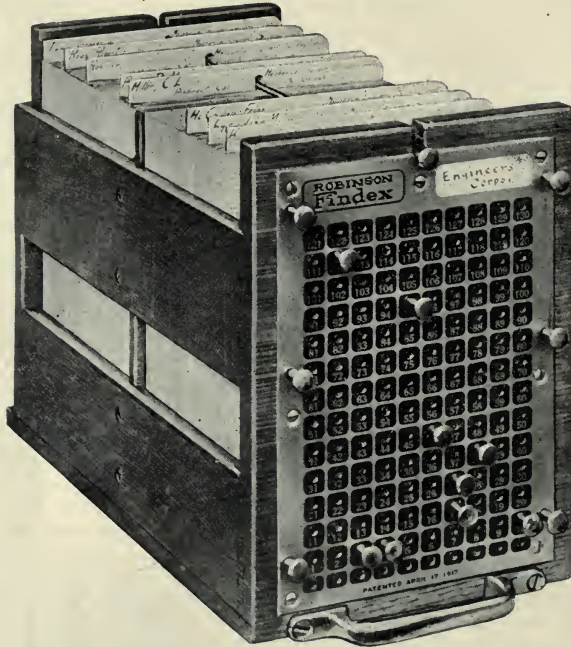


Figure 5. Findex Unit Used by the United States Army.
(Note position of cards which contain desired information.)

Conclusion. In the first chapter we sought to set forth something of the theory on which the superintendent and his associates have tried to build up an efficient type of information service that would furnish the basis for a gradual reorganization of the school department and its activities along functional lines and thereby promote both efficiency and economy. But the job is only started. The goal is a long way off. In the preceding chapters we have been able to report some progress, but all we can say by way of summary is that we believe we are headed in the right direction. Whether this indeed is the road to efficient school administration, time alone will tell.

CHAPTER V.

THE IDEAL INFORMATION SERVICE.

For the criticism of our readers and for the inspiration it may give to any who think as we think, we are appending a brief resume of what we conceive to be the ideal organization for information service that shall really function in the promotion of efficiency and the elimination of waste of all kinds in school administration.

PLANS FOR AN IDEAL BUREAU OF RESEARCH AND EFFICIENCY.

(For a city of the size of Oakland.)

- I. **General Organization of the Bureau Itself.**
 - 1 Statistical Service Division.
 - 2 Information and Publicity Division.
 - 3 Library Division.
 - 4 Efficiency Division.
 - 5 Research Division.
- II. **The Bureau Staff.**
 - 1 Director of Research and Efficiency.
 - 2 Assistant in charge of information and publicity.
 - 3 Librarian (doing some clerical work).
 - 4 Statistical clerk.
 - 5 Office stenographers.
 - 6 Two Hollerith clerks.
 - 7 Student assistants.
 - 8 Telephone operator.
- III. **Necessary Equipment.**
 - 1 Filing equipment.
 - 2 Shelving for Hollerith cards.
 - 3 Shelving for magazines.
 - 4 Desks, with filing space inside, and chairs.
 - 5 Drawing outfit, charts, etc.
 - 6 Adding machine.
 - 7 Calculating machine.

- 8 Findex Units.
- 9 Hollerith equipment (rented).
- 10 Telephone switchboard connecting with all offices.

IV. Functions.

- 1 To perform as far as possible all of the statistical work of the entire school department.
- 2 To maintain complete and up-to-date information files covering statistics, correspondence, questionnaires, books, magazines, clippings, reports, etc.
- 3 To receive all telephone calls, answer all inquiries, and transfer only personal and necessary calls to other departments.
- 4 To serve as a public information bureau for information regarding all departments, no one being allowed to see other officers except on real business. (Locks on various office doors being controlled by electricity from central booth.)
- 5 To distribute all blanks for teachers' applications, forms needed by principals, etc., and all printed circulars and bulletins of the entire department.
- 6 To publish a regular monthly or semi-monthly bulletin of information concerning the department, and have the same distributed to pupils of the schools to take home.
- 7 To publish from time to time special studies or reports having sufficient value to warrant publication, and to assist in the preparation of all published reports for all departments.
- 8 To provide newspapers and citizens with reliable news, and occasionally to prepare articles for local or magazine publication.
- 9 To prepare material for addresses by members of the Board of Education or other school officers, and to furnish them with such information, bibliographies, etc., as they need.
- 10 To answer all questionnaires coming to the department from other cities or from local inquirers.
- 11 To have charge of the filing of all matter (correspondence, reports, etc.) for all departments except that which is regularly needed in departmental offices,

- and to have access to the office files of every department except the personal files of executive officers.
- 12 To maintain a complete and up-to-date professional library, especially of magazines and city reports and all of the latest publications dealing with educational matters, and to keep a complete index of the subject matter therein contained.
 - 13 To issue or post regularly, lists of valuable articles which should be read by various officers of the department or the principals and teachers.
 - 14 To prepare from time to time charts, cuts, and blue prints for exhibition purposes, for publication in local papers or for inclusion in published reports, and showing progress in the schools, or facts about the department which should be brought to the attention of the public in a forceful manner.
 - 15 To keep up-to-date from month to month a series of graphs and curves to guide the superintendent and Board of Education in the administration of the schools.
 - 16 To keep in proper shape such records regarding the work of all schools and departments as will tend to show the relative efficiency of such schools and departments.
 - 17 To regularly call the attention of department heads and the supervisory force to facts of importance discovered in their departments.
 - 18 To work out, with the assistance of department heads, all forms, blanks, record books, etc., for use in all departments with a view both to the immediate and ultimate use which might be made of reports so gathered.
 - 19 To receive all reports from the schools and distribute the same, principals (as the general public) not being permitted to see other officers except on business.
 - 20 To furnish regularly to each member of the board, to the superintendent, and to all department heads, supervisors and principals, loose leaves containing important statistics, graphs, or items of information to be inserted in loose-leaf note-books with which each of said officers is to be supplied.

- 21 To conduct investigations, with the consent of the superintendent, into the work of any office, officer, school, or class, and to publish the results of the same only on the written order of the superintendent.
- 22 To investigate the working of the course of study, the time allotment for the various subjects, the results of different types of organization, and, other administrative or supervisory policies so as to furnish facts to warrant either continuance or discontinuance of such policies.
- 23 To work out a plan for the payment of salaries of teachers, principals, and clerks on the basis of merit, and plans for promotion based on increased efficiency.
- 24 Particularly, to encourage teachers to evaluate their own work and to seek to bring about improvement therein.

V. **Cost.** A careful estimate of costs shows that the Oakland school department would have to add not over \$2500 to the present equipment of its general offices, and that a net amount of not over \$7000 would be added to the present cost of general control. By operating a sort of service bureau with the Hollerith machines for other city departments, it is estimated that this amount might be reduced by from \$1000 to \$1500 per year.

THE PLACE OF SUCH A BUREAU IN THE SCHOOL DEPARTMENT.

The Superintendent of Schools should be the Executive Head of the entire school department. Under his direction there should be certain well defined functional departments all working to assist the superintendent in carrying out his educational policies.

The correlation of departments is not effectively produced by merely announcing that the superintendent is in charge. One of the best means of bringing about this close correlation and co-operation of effort is to centralize all authority, all directions to employees, and all reports from employees, in the superintendent's office. This enables him to keep in close touch with the work of all departments. (Of course, however, the machinery of administration must be so adjusted that there will be no delays

in case the superintendent is otherwise occupied.) Such a bureau as that above outlined, if it is under the immediate control of the superintendent, will enable him to thus co-ordinate the work of all of his departments and to keep in touch with the work of all so that he may spend his time to better advantage.

But the bureau not only sustains this very vital relation to the superintendent; it serves all of the various department heads as well. It enables each department head and principal to get facts about his own department which he cannot well gather for himself, and shows him how his department compares with others in efficiency or how it may work with the others to bring about greater unification of effort.

The Bureau does one thing more. It consolidates all statistical and clerical work into one place, thus making it possible to give the most efficient service for the least expenditure of time and money. Among the things thus centralized are:

- (a) Ordinary statistical and tabulating work.
- (b) Answering requests for information by telephone or in person.
- (c) Receiving and digesting reports.

The fact that these matters are concentrated in one place does not detract in the least from the school officer's control over his own department. The fact that we analyze all of the expenditures for a month by electricity at almost unbelievable speed and give the auditor the results on the day after the month closes does not make our service any less valuable to him than that of his present bookkeeper who requires about two weeks to do the same job.

Just one word further should be added concerning the relation of the new Bureau to other departments. It does not mean the discharge of any employees. It means an increase in the output of present employees. The bookkeeper now, for instance, spends full time on analyzing accounts so as to show distribution of disbursements by purposes, by funds, by appropriations, etc. In the new arrangement, he can do all that he does now in two or three days per month and have the rest of the time to assist in accounting for waste in child life which is far more important than accounting for waste in dollars and cents.

ADVANTAGES OF SUCH A BUREAU.

Let us summarize in brief form the advantages of the proposed Bureau:

1. It relieves the highly paid officials of the department of the necessity for giving their attention to matters of minor importance such as mere clerical routine.

2. It provides such officials with the necessary information to make their work intelligent, purposeful, and well-directed.

3. It saves the thousands of dollars worth of wasted time which these men have formerly spent in mis-directed effort, in cheap clerical work, and in entertaining newspaper men, the general public, and even school officers with reports to deliver.

4. It makes for uniformity, reliability, and accessibility of facts of all kinds pertaining to the school department and its activities.

5. It saves waiting for information until it is too late to make use of it.

6. It makes possible complete information where now we have only fragmentary evidence that anyone can dispute.

7. It will reveal sources of waste and thus inspire all officers to greater efficiency and economy.

8. It will put the school department on a business-like footing that will make it a model of efficiency. Certainly if any concern in the entire city has need to be efficient it is that concern which is molding the lives of the future business men, the future industrial workers, the future office holders, and the future citizens.



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