

2252

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Topographic*

Field No. Office No.

LOCALITY

State *California*

General locality *San Fran-*

Locality *Cisco Bay*

1896

-194-

CHIEF OF PARTY

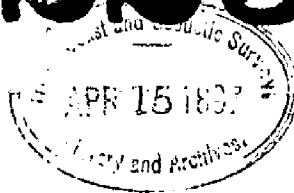
Aug. T. Rodgers

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U. S. COAST AND GEODETIC SURVEY.

Gen. W. W. Suffield, Superintendent.

State: *California.*

DESCRIPTIVE REPORT.

Topographic Sheet No. *2252.*

LOCALITY:

San Francisco Bay.

1876.

CHIEF OF PARTY:

Aug. F. Rodgers.

2252

Descriptive Report to Accompany Topographic Sheet Entitled
U. S. Coast and Geodetic Survey
W. W. Duffield, Superintendent
Re-Survey of San Francisco Bay
Roberts' Landing to Alameda Creek
California

Topographic Survey under the Direction of
Assistant Aug. F. Rodgers

by
Ferdinand Westdahl, Draughtsman

In May and July 1896

Scale 1:10,000

This sheet is essentially a re-survey except that no contouring was done and a few areas on the salt marsh not changed by improvements such as dykes, etc. were not re-examined. Houses near the roads are determined by one rod reading only except where the buildings were large. Houses some distance from the roads are determined by intersections mainly. In some instances where they are located in the midst of orchards it became necessary to run a line of stations to them by the rod. Fences dividing orchards from fields are sketched in, but the road-ends of cross fences are actually determined. Small fences surrounding dwellings etc. are sketched or omitted. The

outer edge only of the cultivated ground is shown, and the entire area within it, except that occupied by railroads, roads, and towns, is either grain fields, vegetable gardens, or orchards.

In the rainy season Alameda Creek, which comes out of the Niles Canyon and drains a large extent of territory, overflows the country in the vicinity of Alvarado, and when this survey began in May it was still flowing in the channel shown by broken lines beginning near the Sugar Refinery and on both sides of the filled in county road northward to the swamp, thence finding its way to the sloughs to the westward of the railroad. Before the Survey ended in July, this branch was dried up and the adjacent land was being prepared for a crop of sugar beets.

The most interesting feature of this sheet is the change wrought by man on the otherwise valueless marsh bordering the bay and sloughs. Nature has provided a large area of level surface and this has been converted by means of dykes into shallow reservoirs to which the salt water of the bay is admitted during spring tides. The sunny weather of the dry season, and more especially the unfailing and strong westerly tradewinds cause rapid evaporation and make ~~the~~ salt-farming a profitable industry. Within the outer dykes the water is lifted from one reservoir to another by means of pumps driven by windmills to the final "pickle ponds", so called, where in a few days it crystalizes and the salt crop is gathered. The pickle ponds are prepared by removing all the grass and grass roots from the marsh and smoothing the clayey subsoil. Small trenches are dug

for admitting the pickle from the reservoirs and for drawing off the bitter surface water remaining after crystalization is effected. The dykes are not very substantial, about three feet in height over the marsh and about two feet wide on top, constructed of material dug up along side of them, thus forming a ditch on either side, too small to be shown in detail on this scale.

In the older salt works the pickle ponds were merely slightly improved natural salt ponds and the dykes followed the windings of the sloughs to avoid the expense of damming these natural arteries. In later years, however, more capital has been invested in this industry and dykes built in straight lines across both large and small sloughs. When for some reason the reservoirs are not in continuous use they soon become overgrown with marsh grass, as for instance, J. Johnsons Salt-works, which have not been operated for several years and are, together with I. Quigley's, J. W. Sinclair's, and the Union City Salt-works, fair specimens of the older style. The American Salt Company's, the Union Pacific, and the Solar Salt-works are examples of modern construction. In the Union Pacific Salt-works the experiment has been tried of constructing some pickle-ponds of wood on platforms raised above the level of the marsh, but I have been informed the slight improvement in the quality of the crop and greater facility of gathering it does not justify the largely increased expense of construction and repairs. The dotted areas shown on the sheet in the vicinity of the pickle ponds represent marsh filled in with mud and clay dug out

of the ditches, ponds and reservoirs. The salt is piled here in regular pyramids of from 1000 to 3000 tons in each and it soon hardens and is compressed so that it becomes necessary to use picks in removing it to the warehouses where it is ground and sacked. In favorable seasons the crop of salt averages from fifteen to twenty tons per acre of enclosed area of reservoirs.

The shoreline bordering the bay on this sheet is very jagged and worn by the swells from the westerly winds at high tide and, although seemingly eroding, is really growing. This is caused by the accumulation of small broken shells from the oyster beds about half a mile distant from the shore being continually washed up by the action of the waves. Almost along the entire shoreline marsh is growing beyond the ordinary high water mark, sloping towards the bay and having its outer edge fairly well defined and corrugated like the high water line proper. These conditions have not always existed. I have been informed by old settlers on the marsh that 25 or 30 years ago the marsh was actually wearing away. The shore line, for instance, where Union Creek Station is located washed away entirely and the signal tripod was held in position by chains while a hydrographic survey was in progress. Mr. J. Michelson, the owner of the land then and now, vouches for these facts. The changed conditions may be attributed to two causes. The first is the gradual spread of the oyster beds over the shoal areas of the bay since they were originally planted, about forty years ago, which furnish light material such as broken shells

readily moved by wave action. The other reason is doubtless the projection of the filled in moles from the Oakland shore into the waters of the bay which has changed the ~~face~~^{face} and direction of the flood and ebb currents along this shore.

There have been radical changes in the shore line of the sloughs apart from the natural tendency of the convex shore to grow out and the concave to wash away. These changes have been effected by the building of dykes, digging canals and short cuts for easier navigation which have since become the main slough, and by damming many sloughs altogether. Union City Creek is no longer so called, the branch connecting it with Alameda Creek having been dammed up and obliterated. Alameda Creek is gradually filling up, especially the southern branch, from the large amount of sediment annually carried by freshets from the agricultural lands bordering its course. While thirty years ago bay-craft of thirty or forty tons could reach Union City vessels of only fifteen to twenty tons now find it difficult to reach the saltworks one and a half miles nearer the bay, and the bank of the creek there has to be dug out to enable them to turn at high water.

Union City is now but a memory, the town of Alvarado having sprung up, overshadowed, and finally absorbed it. The old Union City Mill building is now used for a stove foundry, and near it is located the pumping station of the Oakland Water Company, which draws its supply from artesian wells sunk on the marsh in the vicinity and forces the water through a main twenty miles to the City of Oakland. Fresh water is obtained almost

anywhere on the salt-marsh by sinking artesian wells to a depth of 80 to 200 feet.

Of the old triangulation stations included within the limits of this sheet the following have not been found and are probably obliterated:

Union City Mills △	could not be identified.
Union Creek △	washed away.
Eden Staff △	removed.
Ditch (Rodgers) △	not found.
Ditch (Cutts) △	not found.
San Lorenzo △	on line of railroad.
Kerr △	in ploughed field.
North Chimney △	house removed.
Red Brick Chimney △	is still there, but I have been informed by the owner that it is another chimney erected in almost the same spot.

At station Contra Costa 2 a pole (4 inch scantling) full of tacks and with marks of braces and a top-mast was found standing. I made no search for under-ground mark.

In conclusion I beg leave to call attention to the fibrous condition of the paper of this sheet. It has been very difficult to ink and I dare not clean it for fear of rubbing off the finer lines.

Respectfully submitted,

Ferdinand Westdahl

Draughtsman U.S.C. & G. Survey.