

DELTA OF THE SACRAMENTO.

Where All the Flood Waters of the Valley Meet.

How the Engorgement May be Relieved, and Further Shoaling Prevented.

Recently the "Record-Union" published the report of J. R. Price, Chief Engineer to the Commissioner of Public Works, giving the result of his inspection of the Sacramento River north of the city during its flood condition, and herewith is given Engineer Price's report on the condition of the lower Sacramento, with recommendations for its improvement:

LOWER SACRAMENTO. To Hon. E. E. Leake, Commissioner Public Works: We have already called your attention to the condition of the Sacramento River above Sacramento City, and the probable effect of the agencies that are now working for the destruction of the water-carrying capacity of that portion of the river.

In the report heretofore made we suggested a line of systematic river improvement as a possible remedy for some of the evils now existing. By your consent and direction we have made some observations on the lower Sacramento River, with a view to ascertaining some facts, if possible, that would point to at least a partial remedy for the existing evil.

Anticipating the conditions that prevail during high water, we had established a gauge at Collinsville, near the confluence of the Sacramento and San Joaquin Rivers, which registered elevations of water above mean low tide in Suisun Bay, the zero on the rod corresponding to the elevation of mean low tide. A gauge based upon the same datum was also established at Toland's Landing, a point 0.4 miles above Collinsville, and one at Rio Vista, 7.4 miles above Toland's Landing. A gauge was also established at the River Island pump works, on Cache Slough, a point about four miles above Rio Vista, and one at Maine Prairie, on the northwest side of the Yolo Basin.

In order that we may have a better conception of the topography of this section of the State, it would be well for all who care to study the problem to procure a set of maps and the report of the former Commissioner of Public Works, which maps and report can be obtained free of charge by application at this office.

LOWER RIVER DESCRIBED. In order, however, that we may endeavor to give a word picture of this portion of the Sacramento Valley.

In the report made with reference to the condition of the river above Sacramento City, we fully described the location of the Hershey and Butcher (or Woods) breaks, they are located on the west bank of the Sacramento River, beginning at a point one-half mile above the Elk Horn ranch, and extending above that point for a distance of four miles, more or less.

The waters escaping through these crevasses flow directly into the Yolo Basin, and thence take a southwestwardly course for a distance of about forty-five miles, and enter Cache Slough near the confluence of what is known as Miner's Slough, with Cache Slough. The Sacramento River forms the east boundary of

THE YOLO BASIN. And here in extreme floods we witness nothing but a small margin of land between the waters of Yolo Basin and the Sacramento River. Just above the city of Sacramento the American River joins the Sacramento, and their combined waters flow through the same water courses from this point to the Suisun Bay. A very small portion of this water escapes into the Yolo Basin through Sutter Slough, opposite Courtland.

But the most of the water in Sutter Slough joins Steamboat and Miner Sloughs. Below Courtland, on the Sacramento, the main river divides its waters, a portion taking its course down Steamboat Slough, and the remainder passing down Old River, as it is called, and forming the principal navigable stream from tide water to Sacramento City.

Cache Slough and Steamboat Slough join waters at a point two miles above Rio Vista, and immediately below their confluence Old River adds its waters to the other streams. At the town of Walnut Grove Georgiana Slough leaves Old River, connecting with the Mokelumne River and San Joaquin. This branch of

THE DELTA SYSTEM. Runs no small amount of water in flood season, for the reason that the waters of the San Joaquin are seldom at flood height when the Sacramento is in that condition. We are informed that this condition did exist, however, during the great flood of 1862-63.

Miner, Cache and Steamboat Sloughs form a water boundary for River Island. Grand Island comprises all the land between Steamboat Slough and Old River, and Brannan, Andrus and other fertile and well-reclaimed islands are located south and east of Old River.

We will observe, therefore, that all the waters of the Sacramento Valley, with the exception of what may pass through Georgiana Slough, meet at the foot of Grand Island, and thence flow through their present channel to Suisun Bay by way of Toland's Landing and Collinsville, a portion running into the San Joaquin River through Three-mile Slough and over Sherman Island, near what is known as Horseshoe Bend.

We may expect, therefore, to find an engorgement of the stream in this reach if the channel capacity is inadequate to the task of conducting the waters. Within the boundaries of this division of the Sacramento River, and immediately abreast of the town of Rio Vista, an island has formed, dividing the stream into two distinct channels during low water season, but forming but one enlarged, broad water-way of ill-proportion in time of flood periods.

NEWTOWN SHOALS. Immediately above this island a bar is formed, known as the Newtown Shoals. This bar is simply an extension of the island formation, and extends completely across the whole water-way.

By a series of soundings, taken during low water of the past year, we found the greatest depth of water on this bar to be eleven feet at low water, low tide, or an elevation of the bed of the river of nine feet below low tide in Suisun Bay.

At the mouth of Old River we found the deepest water to be about thirty-three feet, giving a bed elevation of 20.5 feet below low tide in Suisun Bay, or 20.5 feet lower than the bed of the river on the bar.

At the lower end of Wood Island the bed of the river is eighteen feet below low tide in Suisun Bay.

At Horseshoe Bend we found the bed of the river all the way from thirty-two to fifty-five feet below low tide in Suisun Bay.

At Toland's Landing the river bed is from eighteen to twenty-eight feet below low tide in Suisun Bay.

Now, bearing in mind that the river bed in its lowest elevation on the Newtown Shoals is 20 1/2 feet above the river bed at the confluence of Old River and Steamboat Slough, and 9 feet higher than at the foot of Wood Island, we must expect the surface of the water to raise as it passes over this hill in the river and to spread into a broad channel, only to check the velocity and increase the deposit upon the shoals.

DAMMED AND DOOMED. The soundings confirm this view of the proposition and we are prepared to say that the bar is constantly increasing in elevation, forming a dam across the Sacramento River.

The shortest distance between natural banks below the confluence of the Sacramento River, Steamboat Slough and Cache Slough is about 1,100 feet. At a point less than one-half mile below and at the head of Newtown Shoals the stream widens out to a width of 1,650 feet from water's edge to water's edge at low tide, and at the head of Wood Island the stream has a width of no less than 2,000 feet.

In our remarks regarding the elevation of the bed of the river we have taken elevations of deepest water, while in fact a greater portion of the bed of the river crosses Newtown Shoals but very little below, and in some places above, low tide in Suisun Bay, making a much greater contrast between depths of waters above the shoals and those on the shoals.

THE RESULT. Now let us see what the result of this condition of the river leads to in flood periods.

On February 1, 1896, we find the gauge at the River Island pump plant, in Cache Slough, registers 14 feet 9 inches above low tide. At the same time the gauge at Rio Vista registers 12 feet 6 inches above low tide, or a difference of 2 feet 3 inches in a distance of less than four miles. The greatest surface velocity in Cache Slough at this point was 5 1/3 feet per second, with a fall of 6.7 inches per mile to Rio Vista.

At the same time the surface of water had a fall of 2 feet 10 inches from Rio Vista to Toland's Landing, a distance of 7.4 miles, or a fall of about 4 1/2 inches to the mile. We therefore have, as a result of the Newtown Shoals, a fall of 2.2 inches more over the shoals than after passing them, with a less depth of water.

Cache Slough is noted as a deep waterway, and at the River Island pump plant, when the gauge read 14 feet 9 inches, was passing into the Sacramento not less than 60,000 cubic feet per second. At the same time a very large volume of water was passing over the swamp lands known as the Egbert District, and entered the river at and below the confluence of Old River, Steamboat Slough and Cache Slough.

THE GREATEST SURFACE VELOCITY. Of the combined waters just above "Newtown Landing" was 6 2/3 feet per second, while at the same time the greatest surface velocity in Old River, one mile above its confluence with Steamboat and Cache Sloughs, was 2 1/2 feet per second, and in Cache Slough, at a corresponding point, 2.65 feet per second.

It is pertinent to remark that at this time there was no less than 163,000 cubic feet of water passing over the Newtown Shoals, of which we should say not more than 60,000 cubic feet was received from Old River and Steamboat Slough. The remainder came from the great flood reservoir of Yolo Basin.

SCOURING CAPACITY. It is claimed by all engineers that have written upon the subject of the improvement of this portion of the river that the removal of Newtown Shoals, the correction of Horseshoe Bend and the enlargement of the upper portion of Steamboat Slough will largely increase the capacity of the whole Sacramento River, thus improving its scouring capacity and necessarily improve navigation. We believe it would produce this result, and earnestly urge you to present the matter to the Governor of our State that he may place it before our Congressional delegation.

THE REMEDY. We urge the construction of strong, well-protected levees by the landowners, to be assisted by a careful alignment and correction of the river channel by the General Government. This work, once completed, will do more for the improvement of our waterway than any other system that can be devised.

We believe it is the duty of the General Government to make all channels improved, and construct proper embankments for the control of floodwaters.

It is needless for us to remark that by the cutting out or removing of Newtown Shoals you will lower the surface of the water at this point, thereby increasing the velocity of the waters of Steamboat Slough and Old River, and inaugurate a system of river deepening and a partial return of the river to its original condition before hydraulic mining was permitted to injure the water capacity of the stream. Respectfully submitted,

J. R. PRICE, Chief Engineer. M. A. NURSE, Assistant. Sacramento, Feb. 5, 1896.

CIVICS CLUB. President Weinstein to Read a Paper on "Municipal Government."

There will be a meeting of the Young Men's Club of Civics this evening at 8 o'clock, at the parlors of the Congregational Church, Sixth street, between I and J. H. Weinstein, President of the club, has been invited to read a paper on "Municipal Government—Its Evils and Its Remedies." After the reading of the paper there will be a discussion open to all the members.

At this meeting the question will be

considered of organizing the club into a moot board of freeholders, with a view of preparing a new city charter. It is believed that such a program would be a highly educational one in the direction of cultivating on the part of the members a higher and broader knowledge of the science of civics.

The meeting will be open to the public, and seats will be provided for ladies and their escorts, who are cordially invited.

A YOLO CASE.

It is to Determine Who is the Proper Custodian of Swamp Land Monies.

The Superior Court of Yolo County will soon hear the case of Charles Barnes versus J. H. Glide, Francis T. Dwyer and Jos. L. Monica, Trustees of Liston Reclamation District, a petition for a writ of mandamus to compel the trustees of that district to pay into the county treasury of Yolo County all money they have in their possession, or to show cause, if any they have, why they should not do so.

It seems that in Yolo County the trustees of reclamation districts do not pay their moneys into the county treasury for disbursement by the Board of Supervisors, as it is done in Sacramento, and the action referred to was brought to compel them to do so.

The plaintiff is represented by Attorneys William Gwynn and Albert M. Johnson and the defendants by McKune & George, Robert T. and Wm. H. Devlin and Armstrong & Bruner.

A DUSKY SIREN.

Suspected of Having Robbed a White Man of Ten Dollars.

A white man reported at the Police Station on Wednesday night that he had been robbed of \$10 in one of the L-street dens. Officers Fisher and Higgins arrested a very dusky dame named Laura Hoover on suspicion of having been the party, but as the confiding victim would not swear to her identity no complaint was placed against her.

Jailer McManus yesterday morning caught Sil Frost, who is well known to the police, talking to her in her cell, and procured a ladder and set it up to the window, so he locked him up.

FOUNDLING HOME.

It is Now Said to be Conducted Much Better Than Formerly.

Dr. Ross, Chairman of the Board of Health committee appointed to investigate the Foundlings' Home, reports that they found it neat and clean, the children healthy and the management praiseworthy. He recommends that a large dormitory be furnished for the boys, and a better system of keeping the records adopted.

Dr. Waggoner, a member of the committee, does not agree with the others. He claims the children do not receive proper nursing.

A Pastor Resigns.

As the result of gossip involving Rev. J. H. Reider, pastor of the Cavalry Baptist Church, which was thought to have been smoothed over, but broke out afresh, he has tendered his resignation, and it is said will leave the city next week. Many persons have left the congregation, and the pastor threatened to continue if he did not resign.

Successful Applicants.

The following applicants successfully passed the civil service examination on January 18th for positions as clerk in the Internal Revenue Department, in the order of percentage they attained: Robert M. Morrell, George B. Cosby, Jr., Alex. K. Kerr, Helen A. Maslin, John E. Schubert, Albert J. Madsen.

Ice Carnival at Truckee.

Truckee is again frozen up and the ice carnival is in full blast. Ample accommodations for any number of visitors, who will be cordially welcomed and really entertained. Two excursions this week, Friday and Saturday evenings next, February 7th and 8th, leaving San Francisco at 6 p. m., Sacramento at 10 p. m. Rates greatly reduced, being only \$6.50 for the round trip, including Pullman berth. One whole day of glorious sport, skating, toboggan sliding, sleigh-riding and other delightful pastimes of the winter season where snow and ice prevail. Secure sleeping car accommodations at once at depot ticket office.

Races.

A full description of each race at the Bay District track is given at E. L. Kripp's cigar store, 602 J street. The result is known almost as soon as at the track.

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All the events of the track at San Francisco are chronicled daily by George Rose & Co. at Seventh and J streets, and the result is known here almost as soon as on the track.

George Egan and Will H. Hanlon, well-known Sacramentoans, have purchased the Reception Saloon, Seventh and K streets. The full returns of the races at San Francisco are chronicled there daily.

We have second-hand upright pianos from \$150. Square pianos in good condition from \$40 up. If you want a mandolin, a banjo or a guitar call on us and we will sell the genuine instrument cheap. We also carry a line of high-grade pianos. Neale, Eilers Co., Seventh and J sts.

Best standard tomatoes, 4 cans for 25c; asparagus tips, 15c a can; Capital jams, 10c a can. A. C. S., Eighth and K.

Chilblains are cured by using Green's Sure Cure for Chilblains, at Seventh and K streets.

John A. Sutter bourbon whisky, \$1 a bottle. R. K. Bloch & Co., sole controllers.

MARRIED.

McCOLLIGAN-GEOGAN-In this city, February 4th, by the Cathedral, by Rev. Father Grace, Edward McColligan to Kate Geogan.

DIED.

BERGMAN-In this city, February 3d, Cecilia, wife of J. P. Bergman (mother of H. L. Bergman, Mrs. Carrie Hook, M. L. Bergman of Spokane, Wash., Mrs. Christian Lindberg of Oleta, a native of Sweden, aged 75 years, 7 months and 1 day. (Spokane papers please copy.)

Friends and acquaintances are respectfully invited to attend the funeral Friday afternoon, February 7th, at 2 o'clock, from the German Lutheran Church, corner of Twelfth and J streets.

STILLWELL-In this city, February 5th, Ann, wife of Simon Stillwell (mother of Mrs. Mary Lytle, Mrs. Violeta Colburn and Edward Stillwell of Green County, Pennsylvania), a native of England, aged 77 years, 7 months and 20 days. (Pittsburg, Pa., papers please copy.)

Funeral notice hereafter.

When Baby was sick, we gave her Castoria. When she was a Child, she cried for Castoria. When she became Miss, she clung to Castoria. When she had Children, she gave them Castoria.

CHANGED DAILY FOR WEINSTOCK, LUBIN & CO.

To-morrow, 9:30 A. M. SPECIAL SALE

Housekeepers' Items.

LOT 1—Bleached Muslin, 36 inches wide and an excellent quality. Sale price, 4c yard.

LOT 2—Light and Medium Colored Striped Flannelettes, for wrappers, gowns, children's wear, etc. Sale price, 4c yard.

LOT 3—Blue and White Striped Bed Ticking—a good quality for pillows and mattresses. Sale price, 7c yard.

LOT 4—Large-size Bleached Damask Dinner Napkins, fine weave and excellent patterns. Sent by our New York buyer. Sale price, 98c dozen.

LOT 5—Colored Table Cloths, fringed all around, and in such combinations as blue and yellow and pink and blue. Nearly two yards long. Sale price, 69c each.

LOT 6—Large-size Loom Damask Towels, fringed and all white. A towel that will prove of service in every household where it goes. Sale price, 8c each.

LOT 7—Fringed Damask Towels with colored borders. Two styles, at the sale prices, 7c and 11c.

LOT 8—Colored Table Covers, "The Columbian Novelty." Assorted fancy colors and fringed all around. About 1 1/2 yards square. Sale price, 33c each.

IN ADDITION. In addition to above items we shall have: Large-size White Bedspreads, 90c. Brown Sheet, 8/4 width. Price, 12 1/2c. Bleached Linen Table Damask, 41c yard. Fiber Cloth, 65 inches wide, gray, black or natural. Price, 12 1/2c yard.

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MISCELLANEOUS

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Men's Suits, \$4 75. Nothing mean about them. Good, stout chevot cloth, neat dark patterns, pretty nearly as good as the \$10 suits of a few years ago.

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Capital and Surplus, \$600,000. SACRAMENTO BANK. THE OLDEST SAVINGS BANK IN THE city, corner Fifth and J streets, Sacramento. Guaranteed capital, \$500,000; paid up capital, gold coin, \$400,000. Reserve fund, \$51,000. Term and ordinary deposits, \$3,417,002. Loans on real estate July 1, 1895, \$3,056,580. Term and ordinary deposits received. Dividends paid in January and July. Money loaned upon real estate only. Information furnished upon application to W. L. COLEMAN, President, Ed. R. HAMILTON, Cashier.

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The strongest possible evidence will be given to inquiries as to the efficacy and superiority of Dr. Pierce's belts, and a thorough examination and comparison of these goods with all others is respectfully invited of all intending purchasers of an Electric Belt. Call or write for Free Pamphlet, No. 4. Address

DRS. PIERCE & SON, 704 Sacramento Street, Second, third, fourth floors, San Francisco, Cal. M.W.P.

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