The Salton Sea, California's Overlooked Treasure
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PART I - BEFORE THE PRESENT SEA

The Salton Sea - It's Beginnings

The story of the Salton begins with the formation of a great shallow depression, or basin, which modern explorers have called the Salton Sink. Several million years ago a long arm of the Pacific Ocean extended from the Gulf of California though the present Imperial and Coachella valleys. The Colorado River built a delta across the upper part of the Gulf, turning that area into a great salt-water lake. It covered almost 2100 square miles.

It held in suspension and carried down to the sea millions of tons of solid matter as it scoured out such natural wonders as the Grand Canyon. It deposited this vast quantity of silt into the Gulf opposite its mouth and the deposits eventually reached clear to the opposite side, from Yuma to the rampart of the Cocopah Mountains. The delta was ten miles wide by thirty in length. The river then chose for itself a route on the southeastern side of the delta plain, discharging its waters into the Gulf of California. Under the blazing sun, water in the upper Gulf evaporated, leaving a basin incrusted with salt in its deeper parts.

Emptying and Refilling the Basin

How long this ancient sea-bottom remained dry cannot be determined, but many thousands of years ago the Colorado River proceeded to refill the dry basin. The river, running over the raised delta plain, which sloped both ways, could easily be diverted to either side. For centuries, the Colorado made the Salton Sink a great fresh-water lake, depositing in the process 150,000,000 tons or more of silt every year. Artesian borings at Holtville in 1913 showed sedimentary deposits in that part of the Imperial Valley are more than 1,000 feet in depth. Then the river again changed course, cutting a channel to the Gulf through the eastern part of the delta plain. The lake in the Salton Sink dried up again, leaving a two hundred mile ellipse of fresh water shells to mark its former level. No one knows for sure, but in all probability the Colorado alternately flowed into the Salton Sink every four or five hundred years, swinging back and forth across its delta plain.

Explorers, Pathfinders and Surveyors Discover the Sink

For three centuries or more the Salton Sink was a hot, arid desert. Neither Melchior Diaz, a Spanish explorer in the service of Cortes who visited it in 1540, nor Juan Bautista de Anza, who crossed it in 1774, saw anything like a body of water. In the latter part of the 18th and beginning of the 19th century, many Spanish and American pathfinders crossed the Sink on their way from Yuma to the California Missions, but none found anything like a lake. Col. W.H. Emory, who traversed it with General Kearny in the fall of 1846, described it as a hot desert, a "stretch of ninety miles from water to water." Captain A.R. Johnson, who accompanied the Kearney Expedition, was the first to notice that this stretch of waterless desert was the dried-up bottom of an ancient lake, but neither he nor Col. Emory noticed that it was below the level of the sea.

In 1843, Jefferson Davis, who was then Secretary of War, prevailed upon Congress to authorize a series of explorations for the discovery of a practical railroad route to the Pacific Coast. Lt. K. S. Williamson, of the US Topographic Engineers, was selected to lead the southern expedition. With him, as a geologist, went Professor William R. Blake of New York. Professor Blake was the first to explain the origin of the Salton Sink, to trace its ancient history, and to give a name to the great fresh-water lake it had once held. Moving from Mormon Hill in San Bernardino on Nov. 2,1883, the Williamson/Blake Party went down through the San Gorgonio Pass to the Coachella Valley. Along the base of the Santa Rosa Mountains Blake noticed the mark of the ancient sea, which once filled the basin. The ancient water-line mark, measured at 42 feet above sea level, is tufa solids left behind on the rocks as the water evaporated. The thousands of shells of old sea organisms, the slope of the land toward what is now the Salton Sea, plus the reading of his barometer, led Blake to make the assertion that this was indeed an ancient sea bottom and that it was below sea level, actually 271 feet below at its lowest point.

Blake was aided in his findings by the Cahuilla Indians who told him that their ancestors had once lived in the canyons above the sea and came to the sea to catch fish, ducks and other small animals. The sea had receded "poco a poco" (little by little). Once, they said, it came back in a rush, suggesting that they had experienced an overflow of the Colorado River through the New River or other channels, overflows that were still taking place in years when the river was high.

Ideas of Reclamation

Professor Blake noticed that the Cahuilla Indians raised crops of corn, barley and vegetables, using ditch irrigation to bring water from springs around the valley. He suggested in his report the possibility of irrigating with water brought in canals from the Colorado River. Blake's engineer, Ebenezer Hadley, recommended a canal location practically identical with that which was adopted 40 years later.

The Wozencraft Plan

Dr. Oliver M. Wozencraft, a prominent San Francisco physician, seemed most impressed with the agricultural possibilities of the Salton Sink. In 1957 he moved to San Bernardino and launched a campaign to irrigate the desert. He had seen evidence when he crossed the Sink in 1849 that the Colorado River occasionally overflowed into the basin and even formed a series of temporary lakes along what is now the New River. Wozencraft secured the complete cooperation of the California Legislature. On April 12, 1859 it asked Congress to give the state approximately six million acres, including the entire Salton Basin and more. In Congress, the House Public Lands Committee ruled out almost half of the requested land as too high to be irrigated by Colorado River water and the possibility that it might have mineral value. As for the remaining 3,000,000 acres, Congress was ready to make the grant when the Civil War turned attention elsewhere. Wozencraft continued to advocate his proposal in the West and in Washington, where in 1887, confident that he was on the verge of success, he died unexpectedly, and the proposal was again shelved. He was buried in San Bernardino's Pioneer Cemetery.

The Widney Sea

In 1873 a proposal was made to turn the Colorado River deliberately into the Salton Basin and re-create Lake Cahuilla. Dr. Joseph Pomeroy Widney wrote an article in the January issue of the Overland Monthly, presenting a plan for creating a great fresh water lake. If the basin were filled again, he reasoned, the evaporation would be comparable to that of the Bay of Bengal, which had been computed at 16 feet annually. It would be enough, he thought, "to supply 12 inches of rain to the 86,400 square miles". In suggesting how and where the river might be diverted to form a new Lake Cahuilla, Widney added considerably to the evidence that the river was, without help from man, approaching a condition where it might soon turn itself back into the basin. The Public Lands Committee consultant, Richard Stretch, reported that the weather change issue needed further study, but he felt it was "evidently wiser policy to retain the land than to destroy it by submersion." Stretch's report, dated February 8 1874, struck Congress as good thinking. So far as Congress was concerned, that was the last formal action on the Widney Sea proposal

Lost Ships of the Desert

Tales of a Spanish galleon lost in the sands of the Colorado Desert keep recurring. One of the most persistent made the pages of the Los Angeles Star in 1870. It seems that hundreds of years ago, when the waters of the Gulf of California came up into the desert, a pirate ship sailed up the Gulf. It was caught in some cross currents and went aground on a sand bar. The crew died, and the ship was left stranded there with almost a million doubloons and pieces of eight in her hulk.

Historical novelist, Antonio de Fierro Blanco, in his book 'The Journey of the Flame', tells of a party that left Mazatlan in 1615 on a pearl hunting and trading expedition into the northern end of the Vermilion Sea - the Gulf of California. After they passed Point San Felipe, homeward bound, they began to look for the Straits of Anian that would carry them from the Pacific to the Atlantic. Instead they found a narrow entrance leading to an inland sea (presumably the area now occupied by the Salton Sea). While they were exploring the shores of this body of water, a great cloudburst occurred in the adjacent mountains, sending quantities of debris into the sea. This landslide choked the narrow inlet through which they had

come. They spent weeks trying to find another outlet, until the water began to recede, and their ship was finally grounded. They were obliged to leave it in the desert with its vast treasure of pearls aboard.

Subsequently, a boy named Manquerna, from Sinaloa, said that in 1774 he was taken by Captain Juan Bautista de Anza as a mule-driver on the exploring trip from Sonora to the California coast. When they started crossing the desert westward from the Colorado River, he was sent out to the north of the course traveled by the main body of explorers, to seek a different route. While he was traveling at night to avoid the heat, he stumbled upon an ancient ship, and in its hold was so many pearls that they were beyond imagination. He took what he could carry, deserted de Anza, and finally reached the Mission of San Luis Rey. Later, he spent many years trying to find the ship again.

The Salt Works

Indian legends persisted of a lake forming every 50 to 100 years in the bottom of the Salton Sink. The Indians knew about and used the salt deposits. The northern Diegueno Indians from the coast called the deposits "esily", meaning salt, and they made the journey for this precious commodity. As early as the spring of 1815, ox-drawn carretas from Los Angeles made yearly month-long expeditions for salt. The trip was called, "jornada para sal"...journey for salt.

George Durbrow, a San Francisco businessman formed the New Liverpool Salt Company on January 15, 1885 although he actually had begun work on the salt beds in 1884. In 1901 a rival concern, the Standard Salt Company, discovered that title to the land was vested in the US government, and the New Liverpool Company had no rights to harvest the salt. A hastily passed congressional bill required companies to file claims on saline lands. Both Liverpool and Standard had representatives in Washington D.C. ready to telegraph the news that President McKinley had signed the bill and the land was up for grabs. Word arrived at the Mecca telegraph station and the Liverpool men took off down their railroad tracks in a pump-hand car, intending to race to the most choice locations to file their claims. The Standard men took off in a horse and buggy in a great cloud of dust, "knowing smiles" on their faces. When the perspiring Liverpool boys got to the salty area, they found that the Standard men had rigged up a series of mirrors to flash the message, and, in fact, the word had arrived at their camp before the racers were out of Mecca! Ultimately the two companies worked together.

In 1906, Otho Moore and Dean Redfield, hopped a local freight and rode to Salton, from where they could see the big red buildings and smoke stacks of the New Liverpool Salt Company sticking out of the rising water. In 1908, Otho remembers that the train tracks were inundated and that swift waters were flowing over the tracks. When he looked out to where the buildings and smoke stacks had been, there was nothing to see but the rising waters of the future Salton Sea.

Creating the Oasis

The Salton Sea was a man-made accident, brought about by a strange set of seemingly unrelated natural disasters, and economic and political events in the late 1890s and early 1900s, which combined to create the Salton Sea.

In 1891, John C. Beatty of California became interested in the agricultural possibilities of the Colorado Desert and formed a corporation under the name of "The California Irrigation Company", for the purpose of carrying water into the Salton Sink from the Colorado River. He engaged as his technical advisor Mr. C. R. Rockwood who had been employed by the U.S. Reclamation Service.

In 1892, Rockwood was hired to study the feasibility of the irrigation of the Sonora Mesa, below the Mexican border. He found it to be non-feasible, but he became interested in the Salton Basin and Mr. Wozencraft's lost cause. Mr. Rockwood thought that it would be easier and more economical to follow the river's ancient track than to put a conduit through the sand hills on the American side of the boundary.

Rockwood proposed to take water from the Colorado at Potholes, 12 miles above Yuma, carry it southward into Mexico, then westward around the sand hills, and finally northward, across the line again, into Southern California. This plan would involve the digging of a curving canal forty or fifty miles in length, through Mexican territory, but it would remove the necessity of cutting through the sand hills and would perhaps enable the diggers to utilize, on the Mexican side, one of

the ancient overflow channels through which the Colorado had discharged into the Salton Sink in the past.

Mr. Beatty and his associates were unable to secure enough capital for the proposal and in the monetary panic of 1893 they were forced into bankruptcy. The company's maps, records and engineering data were turned over to Mr. Rockwood in satisfaction of a judgment he obtained in a suit for his unpaid salary of $3,500.

After several years Rockwood formed another organization, which was incorporated in New Jersey on April 21, 1896, under the name of 'The California Development Company'. For two years or more, the corporation tried to get permission from the Mexican government to hold land, acquire rights, and dig an irrigation canal south of the boundary line, but the Mexican authorities refused to make any concessions and it was finally necessary to organize a subsidiary Mexican company. This corporation was wholly owned and controlled by the California Development Company, but it operated under a Mexican charter.

The financial resources of both companies were largely on paper so it was necessary to secure real capital to do the work, and Mr. Rockwood found this extremely difficult. At last, in 1898, Mr. Rockwood secured a promise from certain capitalists in New York that they would advance the necessary funds, but two days before the papers were to have been signed, the American battleship "Maine" was blown up in the harbor of Havana, and this catastrophe, together with the war that followed it, put an end to negotiations. Rockwood had been able to secure options on the Mexican land needed for the canal, and on an intake site, the so-called Hanlon Heading, near Pilot Knob, west of Yuma, but the options had expired and the state of New Jersey had started proceedings to revoke the company's charter for non-payment of its fees.

George Chaffey, a civil engineer and irrigation expert from Los Angeles, had successfully established irrigation systems in other parts of California and throughout the world. He remembered Dr. Wozencraft's solicitation, which he had declined not because he was afraid of the engineering difficulties involved, but because he thought that the torrid climate of the Sink would prevent colonization of it. After his experience in the interior of Australia, however, where the temperature in the shade often reached a maximum of 125 degrees, but where men worked without danger or serious inconvenience, he changed his view of irrigation in the Colorado Desert. He sent word to Rockwood that he was interested in the project and he offered to finance it. On April 3, 1900, Chaffey signed a contract that made him president and chief engineer of the California Development Company. The contract bound him to construct canals, at a cost of not more than $150,000, which would carry to the Imperial Valley 400,000 acre-feet of water per annum.

Mr. Chaffey and his associates modified the plan of Mr. Rockwood by taking water from the Colorado at Pilot Knob, nearly opposite Yuma, instead of at Potholes, twelve miles above. Putting in a head gate there, they carried their main canal southward across the Mexican boundary, in a course nearly parallel with the river, until they reached the dry overflow channel known as the Alamo. As this ancient watercourse meandered westward in the direction of the Salton Sink, they were able to clear it out, enlarge it, and utilize most of it as a part of their irrigation system. Then, at a point about forty miles west of the Colorado, they carried their canal northward, across the boundary line again, into California. The work was pushed through with great energy, and on the 14th of May 1901, a little more than a year after Mr. Chaffey assumed direction of affairs, water was turned into the Pilot Knob head gate, and the irrigation of the Salton Sink became a certainty, if not a fully accomplished fact.

The Imperial Valley Is Born

The California Development Company was a water-selling company only, and had no proprietary interest in the lands to be irrigated. It was thought best to form another organization for the promotion of settlement - an activity Mr. Chaffey had successfully pursued in the area east of Los Angeles and in Australia. In March 1901, the Imperial Land Company was incorporated for the purpose of attracting colonists, laying out town sites and bringing lands into cultivation. When Mr. Chaffey and the Land Company began an advertising campaign for the purpose of interesting the general public in the area, and in order not to scare off settlers and small investors by using the ominous words "desert" and "sink", they changed the name of the basin that they proposed to irrigate, calling it "The Imperial Valley."

Settlers soon began to come in, mutual water companies were organized, and by April 1902, four hundred miles of irrigation ditches had been dug, and water was available for 100,000 acres or more of irrigable land.

Chaffey had investigated the basin project with care, but not the financial and legal position of the California Development Company. Tension developed almost immediately between Chaffey and the original heads of the company, especially Rockwood. Chaffey had drawn up the contract himself, without legal advice. He had asked to see the company's books, but was told that they were at corporate headquarters in New Jersey. He accepted statements that the company owned the Mexican land required for the canal and had an option on the intake site. The company had only options, which had expired. There were major financial difficulties and after numerous disputes, seeing that he would lose control of the company with a further sale of stock, Chaffey sold out on April 3, 1902.

The Problem of Silt

Silt is the toughest thing for engineers to deal with when irrigating from a turbid stream. How do you get rid of silt? The Colorado River was a swift, turbulent stream, with great eroding capability. It carried millions of tons of sediment, which, when finally dropped, not only created bars at its mouth, but gradually filled up irrigation ditches and thus lessened their carrying capacity. Before the construction of Hoover Dam, a single day's supply of water for the Imperial Valley contained silt enough to make a levee twenty feet high, twenty feet wide and one mile long. (Imperial Valley Press, July 25, 1916). If this silt was not dredged out, or collected in settling basins, it eventually raised the beds of the canals, filled the ditches and choked the whole irrigation system. The managers of the California Development Company had difficulty, almost from the first, in keeping their waterways open.

From the intake near Pilot Knob, the canal ran alongside the river for a little more than four miles, at the same gentle grade as the river itself--15 inches to the mile. There the old Alamo channel became the canal, at a gradient of 48 inches to the mile. The intake wasn't deep enough to take the intended canal capacity at the low stage of the river. When clamoring settlers failed to get full water delivery, lawsuits were filed against the California Development Company.

The Bureau of Soils Report

In the early part of 1902, the Bureau of Soils of the US Agricultural Department published the results of a survey of the irrigable lands in the Colorado Desert. They reported that the lands were so impregnated with alkali that very few things could be successfully grown on them.

This report was widely quoted and commented upon and was a real deterrent to further colonization. If it had been issued two or three years earlier, it might have been fatal to the whole irrigation project. Fortunately, though, the crops raised by a few farmers who had already been cultivating this "alkali impregnated" land proved conclusively that the report of the analysis of the soil made by the Government experts was unduly pessimistic, if not wholly erroneous.

Great Prospects

Almost everything that was tried did grow and the practical experience of the farmers gradually revived public confidence and interest in the irrigated lands. The colonization and development of the valley proceeded rapidly. There were two thousand settlers at the end of 1902. There were seven thousand in 1903 and ten thousand in 1904.

A branch of the Southern Pacific Railroad was built through the Valley from Imperial Junction to Calexico and Mexicali; town sites were laid out in six or seven different places; the water system was extended by the digging of nearly four hundred additional miles of irrigation ditches and canals, and before the first of January 1905, one hundred and twenty thousand acres of reclaimed land were actually under cultivation, while two hundred thousand acres more had been covered by water stock.

Grapes, melons and garden vegetables matured in the Valley earlier than in any other part of California; barley was a profitable crop; alfalfa could be cut five or six times a year; and the finest quality of long-staple Egyptian cotton yielded more than a bale (500 pounds) to the acre. Experiments proved also that the climate and

soil were well adapted to the culture of grapes, grapefruit, oranges, lemons, olives, figs, dates, apricots, pomegranates, peaches and pears.

The fear that men would not be willing or able to do hard work in the hot climate of the valley proved to be wholly groundless. The valley heat was dry heat, much easier to bear than the very humid heat of much of the country in the summer time. Under these favorable conditions, it seemed almost certain, in 1904, that the Imperial Valley had a great and prosperous future. Unfortunately, the Colorado River, which had created the Imperial Valley, could also destroy it, and it showed that terrible possibility in the winter of 1905.

A New Cut is Made

In the late summer of 1904, it was obvious that something drastic had to be done about the silt problem. Hundreds of farmers in the Imperial Valley had put in claims for damage caused by the lack of adequate water. The financially strapped company did not have the resources to buy the dredges needed to quickly clean out the clogged canal, so they decided to cut a new intake from the river at a point four miles south of the international border. This would eliminate the clogged portion. Little did President Heber and Chief Engineer Rockwood know that the Colorado River was about to make one of its semi-millennial changes in course. In Engineer Rockwoods words, "We hesitated about making this cut, not so much because we believed we were incurring danger of the river's breaking through, as from the fact that we had been unable to obtain the consent of the Government of Mexico to make it, and we believed that we were jeopardizing our Mexican rights should the cut be made without the consent of the Government."

Continuing his explanation in the Calexico Chronicle of May 1909, Rockwood said that cutting from the river to the main canal at this point meant dredging only 3300 feet, through easy material, while an attempt to dredge out the main canal above would have meant going through four miles of very difficult material. The cut was completed in three weeks, by the middle of October 1904, and elaborate plans for a controlling gate were immediately forwarded to the City of Mexico for approval without which they had no right or authority to construct such a gate. Approval finally came in December 1905-more than a year later. Meanwhile serious trouble had begun. Because rod readings kept at Yuma for a period of twenty seven years showed only three winter floods during that time, and never two winter floods in the same year, Rockwood felt there would be plenty of time to close the cut before the approach of a summer flood, using the same means they had used for three successive years around the Chaffey gate at the canal.

Unbelievable Floods

"During this winter of 1905, however, we had more than one winter flood. The first two, arriving in February, did not enlarge the lower intake. In fact, it was necessary to dredge out the channel to allow sufficient water to come into the valley for the use of the people." These floods did not alarm Rockwood because it was still very early in the season. However, a third flood came in March, and it was obvious that they were up against a very unusual season, unknown in the history of the river as far back as they were able to reach. Realizing that the river's elevation was now high enough to deliver needed water to the farmers through the upper intake, they decided to close the lower intake.

At the time the first attempt to close the lower intake was made, the cut was about 60 feet wide. A dam of pilings, brush and sandbags was thrown across it in March, but it had scarcely been completed when another flood came down the Colorado and swept it away. The river also destroyed a second dam of the same kind, built a few weeks later. By the middle of June, the river was discharging 90,000 cubic feet of water per second; the width of the lower intake had widened from sixty feet to one hundred and sixty; water was overflowing the banks of the main canal, rolling across the rich Imperial Valley farmland and accumulating in the deepest part of the Sink. A new Salton Sea was forming.

During the next two years a gigantic battle was waged between man and nature, with man desperately trying to return the river to its original channel, and the river stubbornly refusing to do so. Five attempts were made to close the break in 1905, and all of them failed. Settlers and investors in Imperial Valley watched with increasing alarm as the flood waters continued to wash away valuable farmland. In 1906, another flood widened the gap and sent a wall of water 10 miles wide into

Imperial Valley, threatening the cities of Calexico and Mexicali and carrying away a part of the Inter-California Railroad, a branch line extending down into the Imperial Valley. When its mainline from Los Angeles to Yuma and the east coast was threatened, the Southern Pacific Railroad entered the fight. Tons of brush, rock and dirt were dumped into the break, but the swirling waters washed the materials away. Time and again the Southern Pacific was forced to move its mainline tracks to higher ground.

E. H. Harriman's Fight with the River

The California Development Co. did not have the funds to fight the river, and they applied to the Southern Pacific for a loan on the grounds that the Imperial Valley was furnishing a great deal of traffic to the railroad. Mr. Harriman authorized a loan of $200,000, with the stipulation that the Southern Pacific should have the right to select three directors of the California Development Company, one of whom should be president, and that fifty-one per cent of its stock should be placed in the hands of a trustee as collateral security for the loan. Mr. Harriman appointed Mr. Epes Randolph of Tucson as its president. Randolph found the situation far more serious than the Development Company had represented it to be, and Harriman consented to another loan of $250,000.

On April 19, 1906, the day after the San Francisco earthquake and fire, Mr. Rockwood resigned, and all subsequent defensive work was planned and executed by SP engineers. Thousands of acres of land, covered with growing crops were underwater. Thousands more were so eroded and furrowed by the torrential streams that they would never be cultivated again. The works of the New Liverpool Salt Company were buried under 60 feet of water.

Finally, in November of 1906, the breach was closed when the SP dumped tons of earth and rock into it. But the relief was short-lived. On December 5, 1906, a severe flood rushed down the Gila River into the Colorado near Yuma, and new breaks occurred in the levee. Within a matter of hours, the river was once again flowing entirely into the Salton Sea.

Finally, on January 27, 1907, the breach was closed and the valley's farms and cities were saved. The Colorado River was returned to its former path but it left in its wake today's Salton Sea." The Imperial Irrigation District was formed in 1911. In 1912, it bought the California Development Company from receivership and took over the responsibility of diversion and distribution of water within the Imperial Valley. Not until Hoover Dam was built were the problems of levee maintenance and silting overcome.

PART II - LIVING WITH THE SEA

Mudpots, Geysers, and Mullet Island

The five buttes around the Salton Sea's southeast shoreline are thought to be extinct volcanoes. It was 1898 when Captain Charles E. Davis, so-called 'Monarch of Mullet Island', made camp on one of those dead volcanic buttes. To the north stretched a dry, barren, white waste known as the Salton Sink; to the south lay an inferno of hissing geysers and boiling mud pots.

Captain Davis was intrigued with the idea of living on a dead volcano 200 feet below sea level, and even before the wild water had been brought under control he had acquired the butte, now an island, and had begun construction of his cabin. A hand-painted sign propped against the building proclaimed that this was Hell's Kitchen.

In 1908 he built the boat landing, cafe and dance hall, which were to flourish for nearly a quarter century. During those years, Captain Davis sold his "alfalfa-fed mullet", battled for the conservation of natural resources, released his imported sea lions, made a scientific study of the mud pots, acted as game warden, prepared and served shore dinners, took part in county politics, emceed his dances, and rented boats to duck hunters and vacationers.

In 1925 Harry Siegfried was made president of the newly organized Frontier Development Company. Drilling operations began March 18, 1927. It was a small-bore test well. On reaching a depth of a little over 700 feet they ran into very hot strata of steam and water, and it was decided that further progress with so small a hole was impossible. The well continued to blow steam and water for eighteen months. Well No. 2 came in on December 1, after a depth of 1,000 feet was reached. It blew

in with such violence that for a time it looked like the top of the crater would blow off. It blew uncontrollably for three hours, then plugged. During this volcanic disgorgement it was estimated that over 300 tons of hot mud, exploded shale, pebbles and rock dust were thrown out over the derrick and the top of the island. The force of the explosion and the pressure caused the eight-inch steel casing to bend and twist off, resulting in the plug. A third well was drilled to a depth of 1,473 feet, but the company decided at this point to go no deeper, and the effort to produce high-pressure natural dry steam was abandoned

The first commercial geothermal well was brought in January 1, 1964, near Niland. This 8100-foot well sent brine and steam rushing to the surface just two and a half months after operations began. The prime objective was to explore the potential of these steam geysers to provide and generate electricity. According to scientists who have studied the area, the Imperial Valley has one of the largest geo-thermal potentials in the world. In the Imperial Valley there are perhaps 25 square miles of high temperature porous rock associated with an underground sea of very hot brine, which must have a source of heat deep in the earth. Evidence indicates that the brine is a combination of water released as the magma cools and an active ore solution containing untold tonnages of mineral salts and metals, including copper, manganese, lithium and silver. These impurities in the steam can cause problems for the turbines, but if a successful way can be found to separate these minerals, they will represent another source of wealth.

Date Palm Beach

In 1926 a man with a dream came to the Salton Sea. Seeing beyond the barren stretches of sand, he fell in love with the blue water and the tan and purple mountains, and he envisioned fun loving, sun-loving people finding health, relaxation and entertainment on its shores. The man was Gus Eilers and with John Goldthwaite, a Bay area promoter, he secured land from the Southern Pacific Railroad on the North Shore, down toward the sea from the old train stop at Mortmar. It was 250 feet below sea level.

They called their location Date Palm Beach, and planned to develop it using an Egyptian motif. Stationery and folders spoke of a place "mysteriously enchanting, teeming with adventure." Streets were laid out and named. Eilers built a small building and a pier out into the water, and began coaxing outboard motor boat racers to the sea. They came, they raced, and they loved it! But Gus Eiler's oriental paradise was not to be. In 1929 the stock market crashed, and with it the partnership of Eilers and Goldthwaite. Eilers brought in two of the Olympic Village cottages from Los Angeles in 1932 and he built a 200 ft. pier where motorboats were tied up and kept year round. Date Palm Beach was the place where the official electric timing clock for boat racing was first used.

The largest crowds came during World War II. Eilers said, "We announced that all soldiers could have free swims and we had as many as 500 men a day, with a total of about 150,000 taking advantage of our offer. Patton himself often visited the resort. National attention had focused on Date Palm Beach many times. Several movies were filmed there--"Five Graves to Cairo" and parts of "They Were Expendable" and at least two Abbot and Costello pictures. Film stars entertained by the Eilers included Al Jolson, Brian Ahern, and Ronald Coleman. In 1946, Eilers sold his resort to C. Roy Hunter, and moved to his ranch near Mecca. Hunter renamed the location Desert Beach.

Desert Beach

On a shopping trip to San Francisco, Hunter was in a ship chandler's office and was asked if he would like to buy a beautiful old wheel off the US battleship "Nebraska". Hunter bought it and installed it in the clubhouse, renamed "The Wheelhouse."

But success eluded the Hunter enterprise. Fed by run-off agricultural wastewater and floodwaters from a series of unusually heavy rainstorms, the sea began to rise in 1948, and by 1953 the improvements at Desert Beach were awash. When Hunter had begun improving Desert Beach, the fear was that the sea would recede, so he built his clubhouse as close to the sea as possible and dredged out a small harbor. Title to the land included a guarantee by the Imperial Irrigation District, given in 1915 that the sea would not rise above 238 feet below sea level. In May of 1950, the sea was more than a foot above that mark.

C. Roy Hunter died before a lawsuit brought against the Coachella Valley County Water District and the Imperial Irrigation District was decided. Superior Court Judge Bertram James awarded $188,000 to the Desert Beach owners in 1960.

North Shore

It was 1958 when developer Ray Ryan and Trav Rogers bought the land that is now the town of North Shore. They began selling plots of land for homes and in 1960 began building the North Shore Motel and the North Shore Beach and Yacht Club, which opened in 1962. Gladys Fei, publisher of North Shore News, says that for the next decade, North Shore was a "swinging" place. "This was a very, very popular place. The Beach Boys would come out. And Jerry Lewis had a boat here, and so did the Marx Brothers. There were big boat races, and parties and dances. Clubs and organizations from all over the Coachella Valley came for meetings and parties."

Like most of the other locations around the Salton Sea, fluctuating water levels and flooding created problems. In 1981, North Shore suffered from a severe flood which wiped out the jetty at the yacht club, making it impossible for boats to dock there. The main clubhouse was closed

Salton City

Probably the most ambitious of the Salton Sea developments is Salton City, founded in the late 1950s by A Penn Phillips. An article in the Indio Daily News of September 29, 1964 states that $20,000,000 had already been spent establishing a vast network of roads, sewer lines, power lines and water mains. Some 15,000 persons already owned property in this new city according to the Holly Corporation, which took over the project in 1961. The first nine holes of a championship golf course were opened in 1963, and construction of the second nine holes was begun. Golfers Desi Arnaz, Harry James, Johnny Weissmuller, Johnny Dawson and Ellsworth Vines all praised the golf course. The showpiece of the development was the $500,000 Salton Bay Yacht Club. A 3,500-foot landing strip was built immediately as part of a proposed complete airpark. Commercial buildings including a large motel, restaurant, service stations and stores were built.

Although many lots were sold, few homes were built. The fluctuating sea, and the condition of the water made it less attractive to water-skiers, swimmers and fishermen. In the 1970s, Linda Dresser took over the former Holly House Restaurant and turned it into a casino. A newspaper article of March 21, 1976 called the casino a shot in the arm for Salton City, but the stimulus was only temporary. The casino sits abandoned and the yacht club is in ruins, partly underwater.

Salton Sea Beach-Helen's Beach House

Helen Burns first came to the Salton Sea as a child. After graduating from San Diego State she returned in 1947 to her father's land by the sea. Helen's Beach House grew from a small snack and souvenir stand she planted at the edge of the sea.

In the 1950s Helen's Beach House was the place to go. It had grown into a restaurant, nightclub and boat marina. Helen threw parties for the crowds. There were luaus, jam sessions, beauty contests, long-distance swimming events and speedboat races. In 1958 she began to publish a small newspaper, the Salton Seafarer, designed to bring the communities around the sea closer together.

Three times the Beach House was moved inland because the sea lapped over its foundations. When it burned on June 28, 1979, Helen considered giving up. But friends and neighbors had dumped loads of sand in the flooded areas of her beach front, built an awning of palm fronds onto a small temporary building, hooked up electricity and water and brought in a sound system. Old-timers, dancing in the sand under the stars the night after the fire said it was just like Helen's place in the '40s." Helen Burns died of a heart attack on May 31, 1994, delaying a trip to the hospital until she completed work on the June edition of her newspaper.

Desert Shores

Just north of Salton Sea Beach is the community now called Desert Shores. If you happen to look for this spot on an old map, what you will see is Fish Springs, so named for the small fish that surfaced in the wells there. Developers in the early '50s changed the name and promoted the area as an attractive weekend get-away location. When corvina and other game fish were established in the sea, Desert Shores became very popular as a fishing spot. A five-fingered marina was built at

the water's edge, and mobile homes lined its waterfront lots. A residential community was developed between the sea and Highway 86.

Speedboats in the Desert

"Low barometric pressure and greater water density make the Salton Sea the fastest body of water in the world for speedboat racing," proclaimed an article in National Motorist for January-February, 1950. There were no graded roads down to the sea, and just getting to the water was an adventure. Mecca was the 'jumping off' point and Mecca farmers were called upon with regularity to pull out stalled cars. The Salton Sea Boat Race of December 14, 1929 was particularly exciting because rough waters at regattas at Lake Elsinore and Long Beach that year had kept down speed and there was great expectation that records would fall at Salton Sea. A loudspeaker truck from one of the large oil companies was there to announce results as soon as the boats crossed the finish line. Boy Scouts served refreshments. This was to be the first race in which Eastern boats and pilots had entered competition with the West, and rivalry was expected to be keen. A follow-up newspaper article of December 16 reported that about 2,000 people attended the event.

The temporary motorboat club, which had been sponsoring Salton Sea events, formed a permanent organization in 1929. By the mid-thirties Kent Hitchcock from Balboa and others popularized it sufficiently to attract national attention and backing by the National Power Boat Association. Then the best boats and drivers in the country were lining up to participate. The newly organized Desert Beach Yacht Club sponsored the 1948 Regatta. M-G-M newsreel and Life Magazine and scores of other magazines and papers sent reporters. In the 1950 regatta, Coachella Valley's Dr. Louis Novotny drove to a new five-mile competitive mark, 54.545 mph. The 1951 Regatta resulted in 21 world records.

It was not all serious. The Daily Enterprise of January 5, 1970 had headlines proclaiming, "Salton Sea's bathtub race turns out to be a runaway." The winner, Danny Wegar, skimmed the 25 miles to the east shore and back in one hour and four minutes. For his pains, he received a gold-plated plumber's friend and one-fourth of all entry fees.

Fishing the Salton Sea

The fishermen who first used the earlier manifestations of the Salton Sea were the Indians. Each time the Colorado River turned the Salton Sink into a freshwater lake, the fish swept along with the floodwaters prospered for a time and were a food source for the native people of the area. The fish the Indians caught were probably those carried in by the Colorado River. Even today, salty as the sea is, there are a few carp, blue gill and catfish found in Salton Sea around the freshwater inlets such as the Whitewater drain and the Alamo and New Rivers.

Mullet from the Gulf of California used to migrate up the Colorado River. When Imperial Dam was constructed, the mullet's path was blocked and most mullet died out. The commercial mullet fishery petered out in 1953.

The State Department of Fish and Game recognized the recreational opportunity offered by this vast inland sea and as early as 1929 introduced striped bass from the San Joaquin River and in 1930, from San Francisco Bay. None were ever recovered. Pile worms and mudsuckers from San Diego Bay were introduced to provide food for the bass. Even though the bass didn't make it, the pile worms and mudsuckers did and they proved invaluable as the effort continued to find a game fish for the sea. In 1934, 15,000 silver salmon fingerlings were stocked in Salton Sea, and they all disappeared.

A major effort to establish a sport fishery began in 1948. Freshwater Fisheries Biologists Willis Evans and Phil Douglas and Marine Biologist John Fitch led the program. In 1950 they decided that introducing one species at a time was too time-consuming. They moved to plant every popular species that they could net out of the Gulf of California. Gulf croaker, orange-mouth corvina and gulf-fin corvina were successfully transplanted and they proceeded to multiply. The small gulf croaker became an excellent food for the corvina. Less successful were halibut, perch, smelt, anchovies, sardines, tortuava, squid, clams, mussels and two kinds of oysters. By the end of 1951, 34,000 fish of 35 different saltwater species had been transported from the Gulf of California and planted in the Salton Sea. This was the year that sargo were first successfully transplanted into the sea, and sargo became the second saltwater game fish to thrive in the sea.

An on-going fisheries management program has made Salton Sea one of the best and liveliest fishing areas on the West Coast.

Where Barnacles Grow on the Sage

John Hilton, writing for The Desert Magazine in the early 1940s, remarks on the paradoxes that are the Salton Sea. It is a sea below sea level. On its shores you can collect wood that sinks and rocks that float. At its southern end are geysers of hot mud near gas wells that are used to produce one of the coldest substances on earth--dry ice. Now add barnacles on the sage and saltbush that line its shores. Where in the world did barnacles come from?

During World War II there had been vague rumors that the Navy was using the Salton Sea for certain training and there were even occasional flying boats circling the valley, but most residents thought the mention of a naval base on the Salton Sea was a gag to be classed along with the report of a German sub in Lake Mead, back of Boulder Dam. It soon became apparent that the Navy was definitely moving in. Navy planes flew over the valley. Flying boats came and went, and small craft towing targets could be seen out to sea.

There were two theories as to how the barnacles got there. Some held that they came in on the boats or buoys that were hauled over from the coast. Others blamed the seaplanes. One young flyer told Mr. Hilton that it was not uncommon for the boats to pump their bilges in the Salton Sea. The water might have come from any point in the ocean from San Diego Bay to the South Seas. The barnacle larvae might have survived between the fibers of a wet coil of heavy rope hastily brought from San Diego. However they came-they stayed and they thrived. Today barnacles line the beaches, cover rocks and pilings and generally make recreational use of the sea more difficult.

Little was written about it in the World War II era newspapers, probably for security reasons. The naval base itself was located on the southwest shore of Salton Sea, four miles east of the present Highway 86. It covered an area of 81 square miles, two-thirds of which was over water. The Salton Sea Base, as it was called, was used primarily as a bombing range for non-explosive ballistic tests.

A small city was built for the 100 regular employees who manned the facility when it opened in 1946. Salton Sea Base suffered from the rise of the Salton Sea in the 1950s and was permanently closed in 1993.

Salton Sea State Park

Just south of North Shore, is Salton Sea State Park. At its dedication on February 12, 1955, it was noted that it was the second largest in the state, and would probably be the greatest single spur to the development of the Salton Sea as a great inland recreational area.

It was in November 1949 that authorization to negotiate for lands was given. The original development consisted of 510 acres leased from Imperial Irrigation District. Water was obtained from the All-American Canal, through an agreement with the Coachella Valley County Water District. Work on the park started in July 1952 and on February 12, 1955 more than 1,000 people attended ceremonies dedicating the new park. At the time of the dedication the park service had 1,880 acres under lease, plans for extension into Imperial County, and was envisioning a seashore frontage of 17 miles. Since that time, facilities have been continuously improved and expanded, and a truly wonderful recreational opportunity has been placed at the disposal of visitors year-round.

PART III - WHAT ABOUT THE FUTURE?

Restoring the Salton Sea

Stories of a polluted Salton Sea are greatly exaggerated. Responsible sources have verified the fact that the sea is safe, with work still to be done to discover the cause of some unexplained bird deaths. The real problem is too much salt carried in by irrigation water, and concentrated by the natural process of evaporation. Salinity has gone from 38 parts per thousand in 1965 to 44 ppt in 2000-perilous for fish reproduction. The Coachella and Imperial Valleys produce a large percentage of the fresh fruits and vegetables of the US, and farming would not be possible without a place to run-off the irrigation water used to carry away the excessive salts in the soils. It also is the basin which receives floodwaters originating in the

mountains that surround the valley, and from storms in the valley itself, but the sea would dry up if it were not replenished by irrigation water.

In the 1960s, an advisory committee chaired by the president of the Coachella Valley Water District produced a publication named the Salton Sea Project Federal-State Feasibility Report. The plan suggested then was to drain off portions of the sea--essentially construct in-sea impoundments of salt water, and make changes in the local drain water distribution to dilute and preserve as much of the remainder of the sea as possible. Another possibility was to construct a navigable canal from the Gulf of California to the sea. This plan would necessitate the approval of the Mexican government.

In the early 1980s a plan was proposed which would modify the in-sea impoundment to use the ponds of condensed brine to entrap solar heat, which would be released to drive turbines to produce electricity. In 1986 a Salton Sea Task Force, composed of 16 representatives from federal, state, county and local agencies, and appointed by the California Resources Agency, came up with similar solutions, but had no funding, and the Task Force was disbanded in 1993.

In 1993 a Salton Sea Joint Powers Authority--with the ability to tax and to spend funds--was established. The board includes two directors each from the Coachella Valley Water District, the Imperial Irrigation District, and the counties of Riverside and Imperial. The Salton Sea has a fascinating history--and its best years can be those ahead. The good news is that restoring the sea is possible--it just takes money--and the will of the people to reclaim a beautiful natural resource for present and future generations to enjoy.