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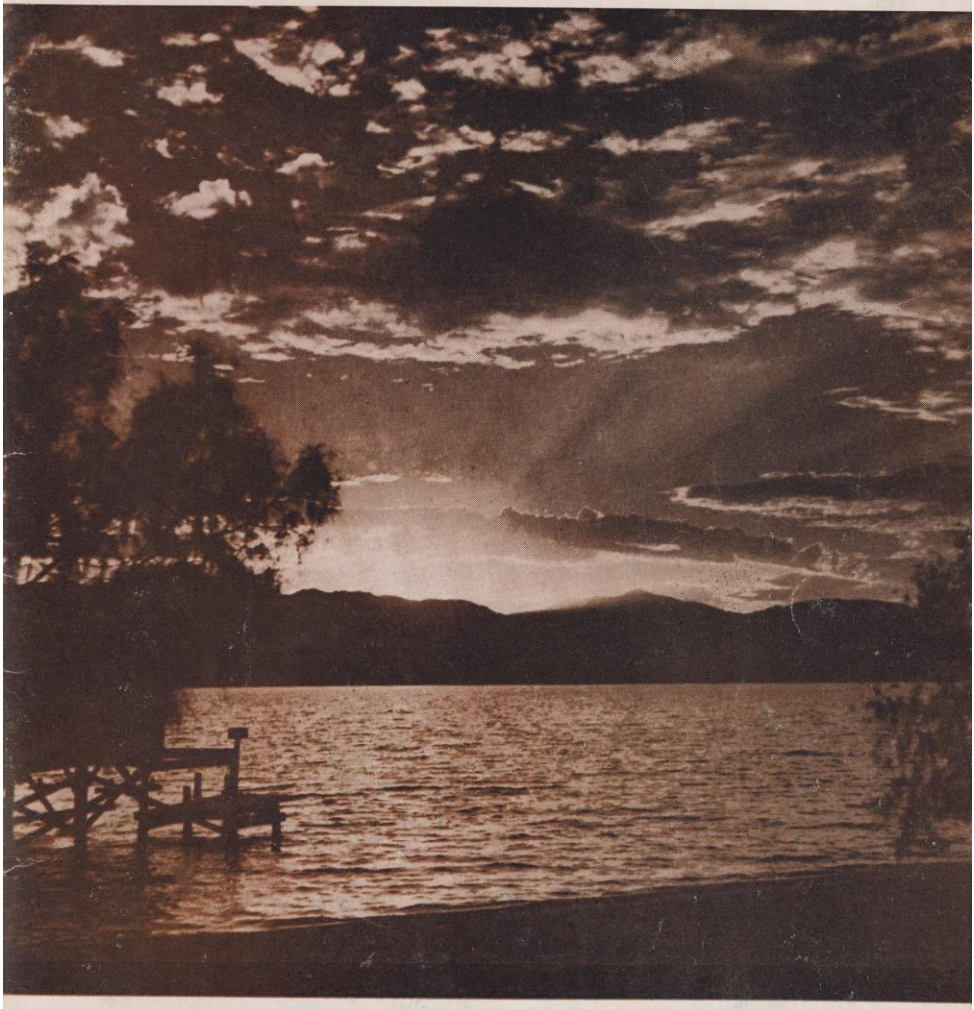
Salton Sea Story . . .

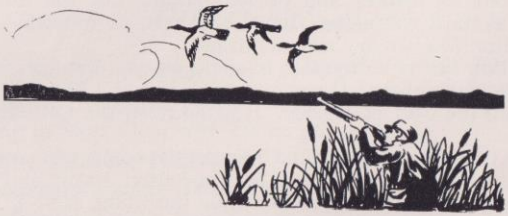


By Helen Burns

To my father and his great faith
in the future of the Salton Sea

SALTON SEA STORY

By HELEN BURNS



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Introduction

After having lived at Salton Sea Beach (on the shores of the Salton Sea) during the reportedly unbearable months of June, July, August and September, with no cooling system other than sea breezes, I am compelled to let it be known (first of all) that it is entirely bearable, pleasant and even enjoyable in this "off season."

There are early-morning strolls along the beach; breezes felt coming from across the Sea, leaving dancing ripples in their wake; steak, corn and potatoes over an open fire; swimming by moonlight; and through it all the ever-changing panorama of sky, land and water.

Yes, it is delightful—even in summer; and my love for this glistening desert Sea, with its surroundings of magnificent color and form, gave me the desire to learn all about it. I had not the slightest difficulty in obtaining my information, for many I approached spoke fluently about its history and present status, but the information I gathered was most confusing. It was, in part, as follows:

The Salton Sea is a dry lake, a mirage.

The Salton Sea is bottomless in some places. You can walk across the Salton Sea anywhere. It came gushing out of a hole in the ground. It came from the Gulf of Mexico. It came from the Colorado River at Yuma.

At the time the water came in, many people and animals were drowned, as there were ranches in the Salton Basin and the water poured in like an avalanche. At the time the water came in, a railroad and salt mine were in the Basin and there was time to take out the equipment before any damage was done.

The water is not clean. The water contains minerals which are wonderfully healthful and have marvelous healing qualities.

It is salty because of evaporation. It is salty because it came from the Gulf. It is salty because of the salt beds.

There are tarpon, sea bass and mullet in the Sea. There is only one kind of fish in the Sea and it is not fit to eat. The Silvery Mullet found in the Salton Sea is a rare delicacy.

Shells found in the soil are ancient seashells; the shells found in the soil are soft-water shells brought in by the Colorado River.

Salton Sea is receding. Salton Sea is rising.

The Salton Sea is very treacherous. The Salton Sea has no tides and no undercurrents and is remarkably safe—ideal for children and those who don't swim.

Its waters are warm all the year around. Its waters are cold in winter.

The only place to hunt is in the reeds along the Alamo and New Rivers. The best place to find ducks and geese is in the middle of the Sea. (See "Facts and Figures," Page 27.)

The more I persisted, the more inconsistent my information became and the more confused became I. So finally, in self-defense, I "took to" the library, typewriter and post office. After much search and a great deal of exploring, I found the facts concerning this fascinating Sea and surrounding area. They are set down on the following pages for those who pass this way.

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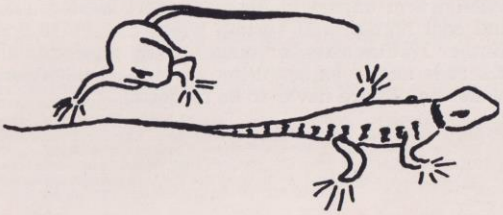

Impressions

The summer visitor to the Colorado Desert finds, set in shimmering sands and pale blue skies, a vast Sea, the limits of which are beyond his sight. He turns from the highway to the shores of the Salton Sea, where he breathes deeply of the clean salt air, delights in the gentle breezes, revels in the deep blue of the waters and the myriad shades in the mountains surrounding them. He is lulled by the waves' lapping softly on the sands. He watches a bird floating dreamily overhead; a white sail far out catches his eye. Such peace! He likes it. He wants to stay.

Though the winter visitor may see much the same picture, still a more restless exciting scene may greet him. In the winter and spring months strong winds occur in the Desert-Sea area, making patterns in the sand and tossing waves on high. The Sea turns green as if in envy of the boundless playground of the winds. A shrieking bird may pierce the sky, then plunge recklessly into the wildest wave, providing accent to the wave-wind roar.

This exhibition, often lasting only a few hours, though at times two or three days, lends a wild excitement which is as luring as the mild summer scene. The visitor again is pleased; he's somehow satisfied. He will return; and seeing, will know the enchantment which is bringing many here to live the year around. With each succeeding visit to this land, a stronger attachment is formed until one scarcely can let go.

There are: Summer, with its lazy-calm and gentle breezes; fall when warm days and nights linger; winter, famous for its sunshine and cool nights; and spring, when the world comes to pay tribute to Mother Nature's flower magic. (The glorious carpet of flowers in the desert is nearly as beguiling as the Sea itself; and seen together, they present a picture never to be forgotten.)

History

After the wonderment at first viewing the Salton Sea, comes the question, "how?", and its history is an absorbing one.

The Colorado Desert is the upper half of a geographical trough extending from the San Gorgonio Pass, between the San Jacinto and San Bernardino Mountains, California, to the Cape of San Lucas, Mexico. It is believed that this was all mountainous in earliest times and that the Sea occupied the whole area, making islands of the loftiest peaks and bringing many forms of sea life, fossilized beds of which are now found as high as 1,000 feet above sea level. Geologists agree that the Salton-Gulf depression was caused by a series of the earth's movements[1], begun much later, about the middle of the Tertiary Age (20 million years ago). During these disturbances the earth subsided leaving a jagged scar stretched from the Gulf northward. At this time the Gulf of California swept in and an immense Sea was formed. So, for the second time the Sea occupied this area.[2]

The peaceful, silent panorama of Sea and mountains today give the average person little indication of the blazing fury which formed them. Indeed, no combination of words or stretch of the imagination could picture the violent upheavals which must have taken place. Mountains suddenly thrusting angry heads into the sky, some crashing into hollows far below; fiery volcanoes spewing then drooling red-hot lava streams, they creeping snakelike through the chaos; an

1. The strongest factors leading to the conclusion that the Salton Basin was formed by a settling, or falling away, rather than by erosion, are: (1) San Andreas Fault, longest on this continent, lies in a northeasterly position traceable from Santa Barbara to the east shores of the Salton Sea. (2) Obsidian Butte and Pumice Butte and the Mud Volcanoes (Solfataras) are located on the southeast rim of the Salton Sea. (3) The Santa Rosa Ridges' tilting and seeming to plunge southeastward into the desert toward the Basin. (4) Position of rockbed and soil.

2. There is some difference of opinion regarding the time of the Sea's occupation of this area, its duration and its expanse. However, it is definitely agreed that the Sea was here at one time and that the immense Lake followed at a later date.

   The Sea's presence is proved by the many square miles of marine fossil beds, especially oyster shells, found here. In places these beds are 200 feet thick. The shells range from very small to some nine and ten inches across.

   The highest ancient shoreline, deposits of travertine which were once under water, and many shells, along with the nature of the salt in the Basin, prove that fresh water occupied the area after the Sea.

   One rather recent theory is that the Ocean came in long before the trough was formed, and at the time the earth was subsiding the delta was being formed by the Colorado, so that, contrary to the general opinion for many years, the Gulf of California never did flow into the trough. Every theory seems to be borne out by nature in some respects and contradicted in others. However, the one on which this paper is based is a generally accepted one.

inrushing torrent; sky and earth of fire and smoke and steam—and then a calm, not a thing alive to see or feel—this may well have been the beginning of the Colorado Desert and the Desert Sea as we know them today, although of course the configuration of the region in those times was a great deal different.

In these ancient times when mountains and Basin were formed and the waves of the Gulf were curling on the desert sands, a powerful river made her entrance and she still is playing the leading role in the story of the Colorado Desert. The Colorado River is rightly called the Mother of the Valley, as she built it and nourished it, and she is still supplying water and nourishment to make possible the tremendous and diversified crop yield throughout Imperial and Coachella Valleys. But this work was begun in ages past. The Colorado River carried her rich load of silt to the shallow, smooth channel of the Gulf where, on emptying into its waters, she deposited it. As she dropped this silt she began building a delta until, over a period of time, this delta extended from the Algodones Sand Hills, below the Yuma of today, to Cerro Prieto, Mexico, and it was high enough to completely divide the Gulf, cutting off this upper portion, leaving here a beautiful inland Sea.

Then the Colorado, sometime in her meanderings, found the Basin, possibly while it still held the imprisoned waters of the Gulf. Though her waters varied in amount and their presence was spasmodic, the Sea gradually rose. The Colorado shifted her channels many times,

Salt being recovered from the Salton Basin in 1904.

leaving the Basin for long periods, then returning and perhaps pouring her full volume into it. At other times when she was flowing into the Gulf, her flood waters would overflow and find their way into the Trough, so that the process was variable. It is believed that the Basin experienced desiccation and refilling many times and that the Lake fluctuated for hundreds of years. Eventually, though, the Sea was displaced by fresh water, as shown by the ancient shoreline, shells and travertine (calcium carbonate deposit), which were all formed by fresh water. This immense Lake was 100 miles long and about 35 miles wide.

Because of the Indian pottery and relics still found along the old shoreline, it is known that some of the more adventurous Indians discovered this beautiful land and brought their families here. The ancient Lake and the Valley in which it settled are both known as "Cahuilla," from the Cahuilla Indians, who inhabited the area. (Lake Cahuilla is sometimes referred to as Blake Sea, for Professor William Blake, who made the first thorough scientific studies of the region.)

Then in her typical spirit of abandon the fickle Colorado turned from Lake Cahuilla and it eventually evaporated in the winds and under the blazing sun, leaving a Basin of salt beds, shells and dead fish surrounded by ringed water lines on the mountains.[3]

This gradual drying up of the Lake is part of the tradition of the Indians and they state that the water of the shores of the Lake retired "poco-a-poco" (little by little). One can imagine how, many many years after their ancestors had first come into this land, the Indians were forced to leave as the waters became salty and fish died; how they moved to the mountains above San Diego or to the Colorado River valleys, relating their strange story.

Our River, though, was not yet through with the Salton Basin. Again she began to fluctuate between the Gulf and the Cahuilla Basin, which is now referred to as Salton Sink, or Salton Basin, because of the beds of salt left by the Lake. She came by way of the Alamo River until her new banks were formed, again sending her back into the Gulf. And always when she came brought her minerals and animal matter, enriching the soil.[4] It is recorded that her flood water flowed into the Salton Sink in 1840, 1842, 1852, 1859, 1862 and 1867, and some of the waters found their way into the Basin nearly every year after that.

Men saw the great possibilities for Reclamation of the Colorado Desert as early as 1852. They were considered visionary and their plans fantastic, but there was always someone interested and working for this great project; and finally, in 1896, the California Development Company was organized. Because of lack of funds, no work was done until 1900, and it was 1902 before water was first turned into the main canal for irrigation.

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3. The deepest depression of the Basin contained a body of crystalline salt, which extended to a depth of 25 feet below the surface. This salt bed was being used commercially at the time of the flood in 1905. The salt found in the Basin was from the condensation of fresh water rather than the evaporation of Sea water.

4. Now the soil in the Valley has layers of colloidal clay and fine silt as deep as 1,000 feet. This has been deposited here intermittently by the Colorado. The sand in the soil is mostly that which has been washed down from the mountains. More of this sand is found in the northern part of Basin, farthest from the River's inlet.

One of the difficulties at first was securing a concession from the Mexican Government, as the main canals were to run through Mexican soil for several miles. This was obtained, however, the terms requiring that a head gate for taking water from the Colorado River be maintained on the Mexican as well as on the California side. (Since the construction of the All-American Canal the canals have all been north of the border. Gates at Imperial Dam, above Yuma, divert Colorado River water through the All-American Canal, and a portion of this water is subsequently diverted into Mexico at Pilot Knob, about twenty miles downstream from the Dam.)

The first canals brought water from the Colorado River to Imperial Valley, delta lands lying below sea level between the Gulf of California and the Salton Basin. A railway was constructed and towns were built, the first towns being Brawley, Imperial, Holtville, Heber and Calexico.

By September, 1904, the California Development Company had constructed over 700 miles of canals and ditches, had brought 8,000 settlers into Imperial Valley and had nearly 75,000 acres in cultivation. (In 1914 the Imperial Irrigation District was organized and in 1915 it took over the canal properties. In 1918 the Government appropriated $15,000 and the Imperial Irrigation District contributed $30,000 towards a complete survey and cost estimate for an All-American Canal. In 1940 waters from the All-American Canal were being used for irrigation in Imperial Valleys, and there are now 435,000 acres being irrigated by these waters in that Valley.)

While the California Development Company was working on the construction of the Canals for reclamation of the Imperial Valley, artesian wells were supplying water for irrigation in Coachella Valley, to the north. It was in 1900, six years after the first strong flow of artesian water was obtained, that the hydraulic method of drilling was introduced into the Valley, and from that time agricultural expansion has been continuous. Indio was the trading center for the Valley, and there were settlements in Mecca, Thermal and Coachella. (The waters of the Coachella Branch of the All-American Canal were available in 1948. In 1949 regular deliveries of water commenced. This Branch of the main canal is now 124 miles long, and when all of the laterals are completed, 80,000 acres in Coachella Valley will be irrigated by its water, waters from the same River which is responsible for the area's colorful history and potential productivity.)

In the fall of 1904 the California Development Company was unable to furnish sufficient water for the winter crops because the first four miles of the canal below the River were silted so much. The floor of the head gate was only three feet below the low water elevation of the River and this was too shallow to take enough water through to prevent silting of the canal. (The Colorado is known to carry nearly ten tons of silt with every acre foot of water. The Grand Canyon is a good example of her erosive powers; for it is this mighty River which has carved a valley 217 miles long and 2,000-6,000 feet deep, bringing the rich load of silt into the Colorado Desert's valleys.)

Because of the silting, during periods of low water the California Development Company had been cutting a by-pass around the head gate to insure a sufficient flow. No damage was done as the gap was

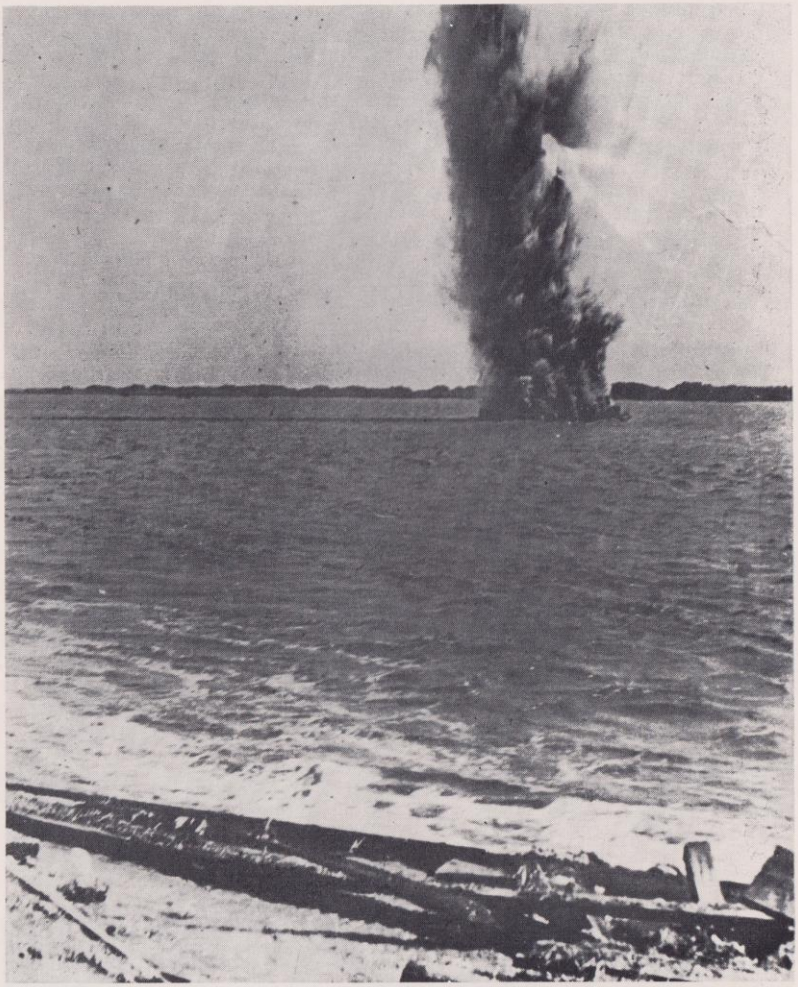
always closed before high water. This time, though, the by-pass would not be workable because of so much silt. So, after much deliberation and because of lack of time and of funds to alter the gate, they cut another channel from the River to the canal below the silted four miles. See map page 11. A concession was obtained from the Mexican Government as this channel was about four miles below the Mexican boundary. It was planned to close this before the annual spring floods. The new channel was 50 feet wide and 3300 feet long. It provided ample water for the crops; but in December, when plans were being made to fill in the ditch, an early flood came rushing down the Gila River into the Colorado. An immense volume of water came through the ditch and canal. The waters cut back and widened the ditch but no harm was done. Then, before anything effective could be done, other floods of constantly increasing volume followed; and in April, 1905, the whole River tore through the ditch, her churning water defying all attempts at control. The channel had widened from the original 50 feet to 800 feet. The waters flooded and eroded farm lands in the Valley floor before they reached the Salton Basin.

A freak waterfall was formed where the flooded New River flowed into the Salton Basin. (See the historical map on page 11.) The swift curling waters washed away the sand underneath and what was at first a ripple gradually grew into a vicious roaring cataract, as it worked its way upstream swallowing everything in its path. Families worked feverishly to harvest their crops before the oncoming roaring waters brought disaster. A picture of this monstrosity can be seen on page 12.

The California Development Company made several unsuccessful attempts to close the breach and efforts of the Federal Bureau of Reclamation were without success. In one year the cut had widened from 50 to 4,000 feet.

It was in September, 1906, after the urging of President Theodore Roosevelt, that the Southern Pacific Railway Company took over the task of diverting the runaway. The main line of the Southern Pacific

Rocks were hauled to close the widening gap.



Dynamite was used in an effort to check the menacing flow.

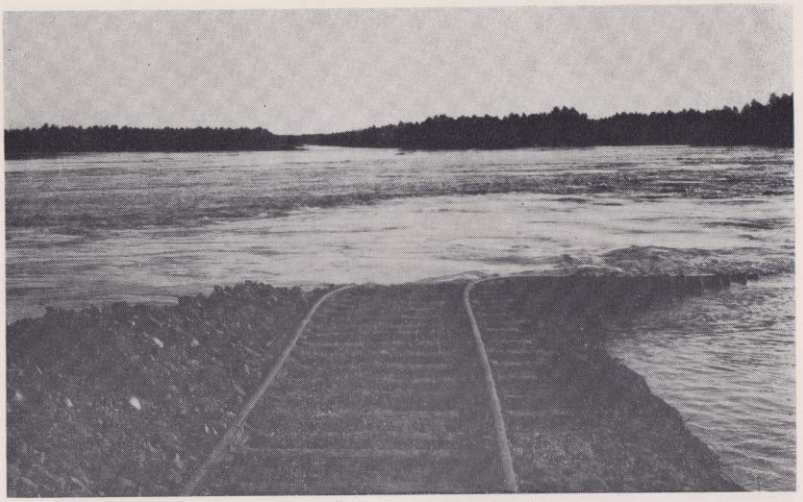
Railway crossed the floor of the Salton Basin. It was moved three times before the advancing waters.

Desperate attempts were begun. Huge mattresses made of brush and willow trees were sewn with heavy wire and cables and fastened along each side of the bridge. Every available freight car was loaded with rocks and rushed to the scene. All quarries from here to New

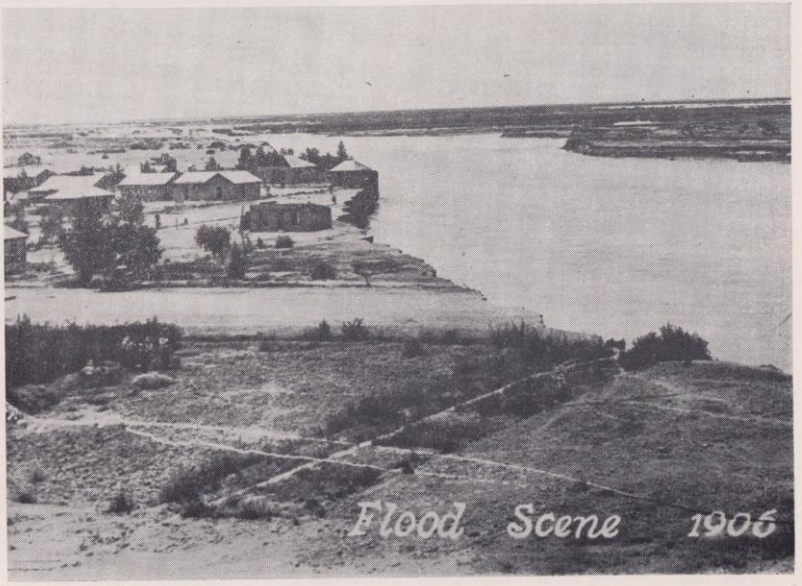
Treacherous "cut-back" running upstream from the Salton Sea.

Ranchers in Mecca fleeing from their flooded home.

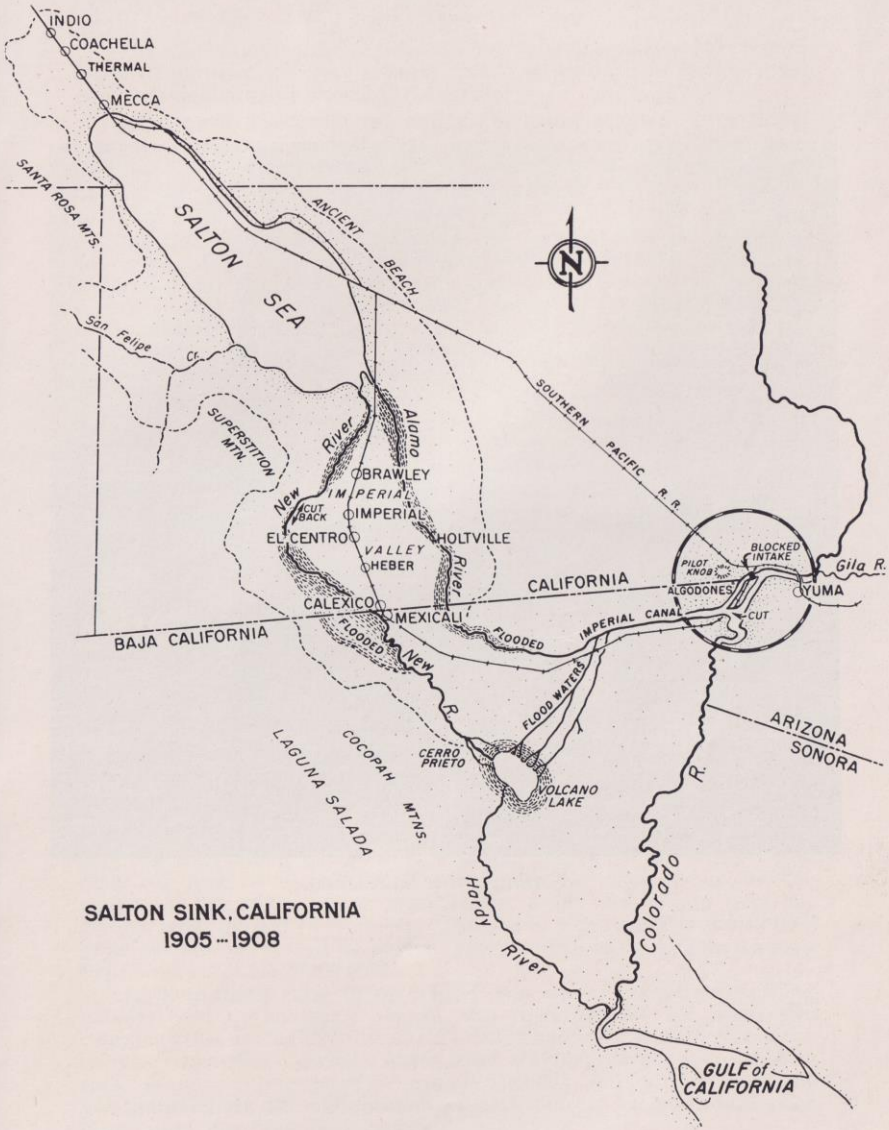
Orleans were used and equipment for the quick-loading of rocks was ready. Day and night rocks were dumped on the mattresses. As the rocks were piled higher the waters became more menacing and the swift raging torrents cut away the banks and were removing silt from around the rocks and mattresses. It was a terrific struggle for both man and his adversary, but the men worked swiftly and the rocks were thrown faster than the River could cut away. So, the battle was finally won and the mighty Colorado again turned to the Gulf (February 10, 1907), leaving the beautiful Salton Sea, which is now 35 miles long, 10 to 16 miles wide with a maximum depth of 70 feet.



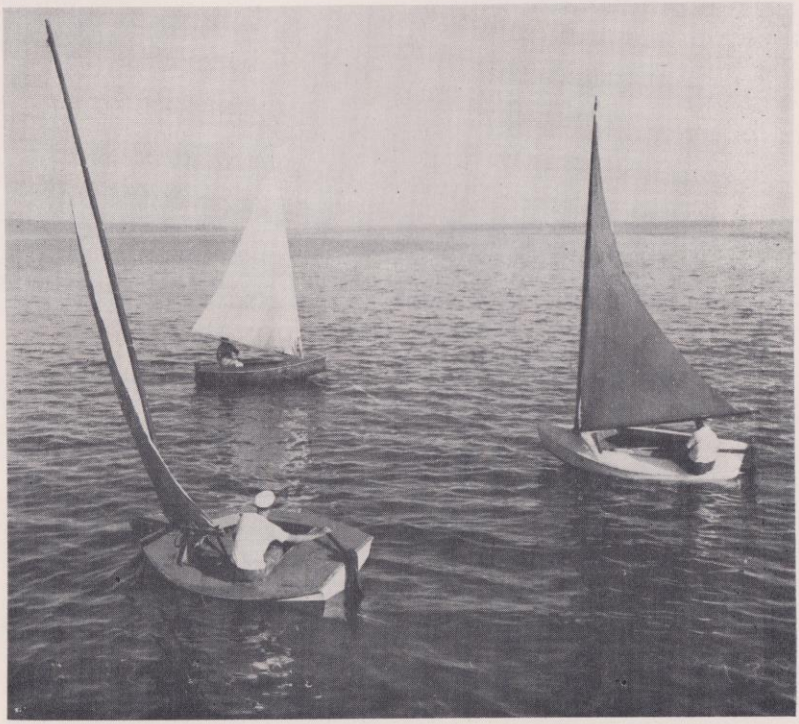
Submergence of the Southern Pacific tracks.



Communities were washed away as the water flowed toward the Salton Sink.



SALTON SINK, CALIFORNIA
1905 – 1908



Sailing on the Salton Sea.

Sports

The combination of Sea and winter sunshine makes the Salton Sea a playground the year around, and it is destined to be the most popular resort area in Southern California.

Swimming: These waters could not be better adapted to the swimmer. He is buoyant; the waters are warm in summer and, though cold in winter, there is sunshine after the swim; the Sea is usually calm enough for easy swimming; and there is no danger from tides, undercurrents, holes or treacherous fish.

Boating: Salton Sea is known as the fastest water in the world, due to the fact that is its 240 feet below sea level; and with the greater water density, propellers can take a tremendous bite. There is great interest in the annual races held here. Many are bringing their boats to the Salton Sea both summer and winter. Speed-boat racing and skiing come first in popularity and sailing is always a delight as winds play constantly on this desert Sea.

Hiking: A hike along the beach is always pleasant. Besides listening to and watching the waters, there are ever-changing colors in mountains and sky, and the fish jumping or birds sailing, floating, dipping and diving into the Sea. Barnacles adorn driftwood, branches and rocks, which are washed up on the beaches. These, and small shells and interesting rocks make treasured souvenirs for the visitor. Many who spend their vacations here have great fun exploring the mountains, studying land and soil, picking up Indian relics and unusual rocks and shells in the foothills and along the old beachline.

Hunting: Dove, quail, ducks and geese abound in this area and may be had in season. Duck and goose hunting is best south of the Salton Sea, in Imperial Valley where there are grain fields. Dove and quail can be found in the many little ravines and washes in the foothills and desert bordering the Salton Sea.

Fishing: Mullet are vegetarians and it is difficult to catch them with a hook and line. Nets are used mostly. When a school is located, there is little difficulty getting the fish. The schools are determined by big spots of rippling water or by flashes of silver seen as the fish jump. They may be taken from the Salton Sea at any time of the year by those with sporting fishing licenses. They must be taken between one hour before sunrise and one hour after sunset. The daily bag limit is 20 pounds. The fish may be taken by use of the hands, by line with one or more hooks, or by use of dip nets not greater than six feet in diameter. The Sea is being stocked with other types of fish but it will be several years before there will be enough to provide sport for fishermen.

Rock Hunting: The "Rock Hound" has one of the most absorbing hobbies, and he is nearly always well rewarded for his hikes and camping trips in this vicinity. In his collection are: chalcedony, quartz, calcite, tourmaline, garnet, serpentine, obsidian, sandstone, rainbow rock, pumice, mica, petrified oysters, geodes and pottery. (In the mountains above the old shoreline Indian pottery of great value has been found. See Map, back cover.)

Calendar

FEBRUARY

National Date Festival—The Date, Coachella Valley's unique agricultural product, inspired the brilliant festival, which is presented in February of each year. Throngs gather in Indio's colorful grounds, delighting over the many displays and unusual entertainment.

Each night an Arabian Nights Pageant is given in an Outdoor Theatre, permanent setting being of Old Bagdad. The visitor is completely charmed by this sparkling performance and by the exotic atmosphere in and around the grounds. Costumed localites add much to the color and brilliancy of the celebration.

Imperial County Fair—One can hear or read of the wonders of the Imperial Valley's agricultural attainments, but a visit to the County Fair, held in El Centro the last of February through the first few days in March each year, gives him an awe-inspiring picture of the diversity, fine quality and wealth of the Valley's remarkable industry.

MARCH

The International Desert Cavalcade is presented annually in Calexico. The singular and colorful history of the Imperial Valley, together with the unfailing enthusiasm of all Valley residents, make a tremendous success of the Cavalcade.

A Pageant, presented in a natural outdoor theatre in Calexico, highlights the three-day celebration. People of Calexico, with the help of those throughout the Valley and their friends in Mexicali across the border stage this breath-taking drama from out of the past. Spectators relive the struggle of men who challenged the desert and made of it a garden, unexcelled.

Wildflowers bring the desert sands to life. From February through July and even August, they may be found peering brightly from brush, rock and driftwood. But in March, especially after a winter of con-

siderable rain, they set the desert floor ablaze. Verbena outdoes them all, exhibiting solid carpets of lavender stretching for miles along the highways, to the Sea and into the foothills. Wild heliotrope and hollyhock, encelias, phacelias and beloperone, splash the landscape with their blue, flame, yellow and red. The more observant may find beautiful waxlike blossoms, such as the hesperocallis undulatus, a lily which one is startled to see flourishing in the dry desert sands, and which compares favorably with the most choice and rare flowers to be found anywhere.

The wildflowers' mad splurge of color extends from March into April, the very air is pungent with the many fragrances. Then the desert floor is left for another year with her predominating grays, browns and green. But spring will bring another Fiesta of the Flowers, when the atmosphere will tingle with excitement over the "Big Show" of the desert.

APRIL

Easter Services—Early Easter morning services are held on Travertine Rock overlooking the Salton Sea. One is deeply touched and inspired, by the sight as well as the sermon, for Christ lived in a desert land much like this and frequented the Sea of Galilee, to which the Salton Sea bears such a striking resemblance. One can almost see Him speaking to His followers on the shores of the Sea or walking alone in the mountains.

Easter Pageant—An annual Easter Pageant entitled "The Master Passes By," is presented on a natural stage in Box Canyon, six miles east of Mecca. The cast of 40 includes many men and women of rich dramatic background. The Pageant is an artistic achievement well worth seeing and its setting in the desert sands and under a thousand stars has a part in making it entirely unique and inspirational.

MAY

Corn Festival—During the last of May this festival is held in Coachella's shopping district. Valley residents and visitors enjoy ball games, dancing, gay carnival and entertainment by Coachella's local talent.

Cantaloupes—These melons are harvested from the middle of May into early July in Imperial Valley. These are the nation's earliest melons.

JUNE

Grape Harvest—Thompson Seedless Grapes, the earliest in the country, are harvested in June and July.

SEPTEMBER

Dates—There are two types of dates grown in the Coachella Valley: soft dates, which ripen rapidly and are harvested in September; and the Deglet-Noor, most widely grown here and ripening from September through February. The Deglet-Noors can be kept for long periods of time, while the soft dates are quite perishable.

The dry air prevailing in the Coachella Valley during August and September is well suited to the Deglet-Noor, which is very sensitive to atmospheric conditions, especially during the ripening periods. Coachella Valley is the only section of the United States where this date is grown, and it is considered the finest in the world.

The date trees were originaly imported from Africa and countries around the Persian Gulf, and the date industry started in Coachella Valley in 1904.

Dove Season

OCTOBER

Salton Sea Regatta—In the Fall of each year, spectacular speed-boat races are held at the Salton Sea. This is a world-famous event and as many as 125 top-ranking inboard and outboard drivers (from the midget out-board to the Gold Cup Class) from all over the country participate. Many existing records have been set here and it is a thrilling experience to see these speedy craft vie for the championship.

Duck and Goose Hunting

Cotton Carnival—In late October, during the cotton-picking season, this gay event is celebrated in Coachella with entertainment booths, dancing and games.

DECEMBER

Lettuce Harvest—The largest harvest season in Imperial Valley is that of lettuce, which runs from December 15th through March. In 1948, 16,801 carloads of lettuce were produced, bringing $17,204,224.

Season opens for commercial fishing in the Salton Sea. The season extends through May. There is some question as to how long commercial fishing will be allowed here since the Division of Fish and Game is stocking the Sea with fish from the Gulf for sportsmen.

Boiling mud pots near Salton Sea.

Places of Interest

See Map—Back Cover

PAINTED CANYON is located a few miles off highway 195, just east of Mecca. The road up the Canyon is sandy and it is best to leave the car and walk. However, it is well worth exploring, for the color and form found there are something always to be remembered.

BOX CANYON, where the Easter Pageant is held each year, is named for the vertical rock formations rising on every side.

INDIAN PETROGLYPHS—A dirt road running west for two miles from Highway 99, just 11 miles south of Indio (at Valerie Jeans) takes one to the base of the hills upon which the old shoreline can be clearly seen. At the foot of the hills there is a turn to the right, through a fence and the road follows along the base of the hills for a few hundred feet, where Indian writings can be seen chipped on travertine-coated rocks. However, unfortunately one can also scale these steep rocky hillsides to find "John Jones, 1936."

FISH TRAPS—About 1,000 feet from the Petroglyphs are found shallow pits which were one time believed to be used by the Indians as fish traps. Recent archeological investigation, however, indicates that they were the foundations of brush shelters.

TRAVERTINE ROCK is an ancient landmark located just south of the Riverside-Imperial County Line on the west side of the Salton Sea. It is made up of huge boulders. The old waterline can be clearly seen encircling the tip of this ancient island, and the rocks below this line are covered with travertine (calcium carbonate), 18 inches thick in some places, deposited by the waters of ancient Lake Cahuilla. On the northeast side of Travertine Rock is a narrow cave about 20 yards deep. Fragments of pottery have been found there, showing that it was inhabited.

CORAL REEF is located near the mountains west of Thermal. It is a long jagged ridge on which the old beachline is strongly marked. The so-called "coral" is actually travertine, which encrusts the rocks which were once submerged. There is no vegetation. Small shells cover the ground and pottery fragments are found here.

SALTON SEA BEACH is located on the northwestern shores of the Salton Sea. It is in Imperial County, five miles south of the County Line, off Highway 99. A blacktop highway leads the way through the property and to the beach, where swimming, speed-boat racing, sail-

boating, skiing and sunning are enjoyed every month of the year. It is becoming a favorite stopping place for travelers as well as local people. For health, sport, genuine pleasure and relaxation, no place could compare.

U. S. SALTON SEA BASE is 18 miles south of Salton Sea Beach on the shores of the Salton Sea. It is a Government station and is not open to the public.

SUPERSTITION MOUNTAIN is a long low ridge south of the Salton Sea. It is mainly interesting for its deadly reputation among both Indians and whites. Unusual and interesting minerals are found. Indians one time inhabited the area, but water has never been found there. One hears tales of lost men and gold mines in the Superstitions.

FIG TREE JOHN SPRINGS AND AGUA DULCE—Old Juan Razon, better known as Fig Tree John, at one time lived on the southwest rim of the Salton Basin. The fig trees, cottonwoods and palms were the most striking features of this spot. The fig trees, along with John, gave it the name Fig Tree John Springs, and it is still shown on many of the maps under this name.

John's first home was submerged in the flood of 1905 and he moved to higher ground, where a spring of good water and a cluster of Washingtonia Palms offered relief from the dry and barren landscape immediately surrounding. This, Fig Tree John's second home in this region, is called Agua Dulce (sweet water).

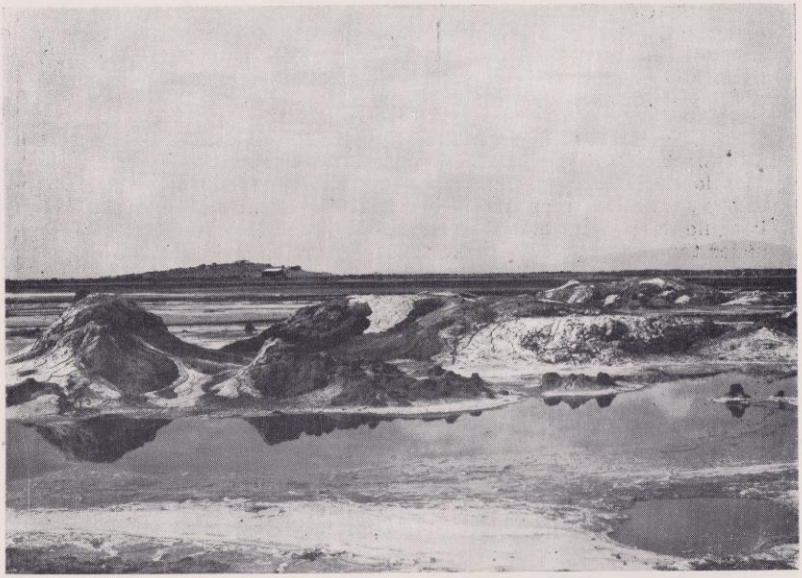
One still hears tales of this famous old man of the desert, his shrewdness and, some say, of his not too honorable character. He was not popular among the white people, but he gloried in showing papers signed by the last great chief of the Cahuillas, making him "capitan" of the Agua Dulce Tribe and the owner of all the surrounding land.

FISH SPRINGS is about three miles north of Salton Sea Beach. It is a "lush" place for this desert country. Fish Springs was at one time the watering place for travelers, the first water after leaving Indio, and the last until reaching Carrizo, 45 miles to the south. It is marked by mesquite and cottonwood trees, which grow over several acres. Small fish come up with the waters of the spring and swim in the pool. This land is now privately owned.

PELICAN ISLAND—Pelicans make their home and breeding ground on an Island about 15 miles down the west side of the Sea. It can be reached only by boat, but the trip on the water, coupled with the unusual experience of seeing these huge white birds in their natural habitat is a thrill.

HIDDEN SPRINGS—The route to Hidden Springs can be seen on most maps, but the sandy road leading to it makes it prohibitive to most cars. It is about a four-mile hike up the gradual slope of the mountains. They are well named for numerous ravines lead from the main path and one is fortunate to find the right one, leading to springs and a cluster of palm trees hidden behind a steep barricade of rock.

DESERT BEACH—On the northeastern shores of the Sea is a favorite vacation spot for Southern Californians. Many boats are harbored at Desert Beach the year around. A pier, cafe, bar and



Mud geysers at the south end of Salton Sea.

motel, located near the waters, offer real comfort and pleasure to the visitor.

SALTON BEACH—A few miles south of Desert Beach is a spot frequented by many fishermen as well as tourists. Canned, smoked or fresh mullet may be obtained there in season. There is a beach for swimming.

HOT WELL—This well was tapped accidentally while the aqueduct was being constructed. It is located by the canal, about 4 miles off Highway 111, at the southeastern side of the Salton Sea. A big iron casing has been put in and boiling water bubbles out the year around. Algae in the water attracts minerals, and one can see colored rocks being formed under the flowing waters. There are salt cedars growing around the well.

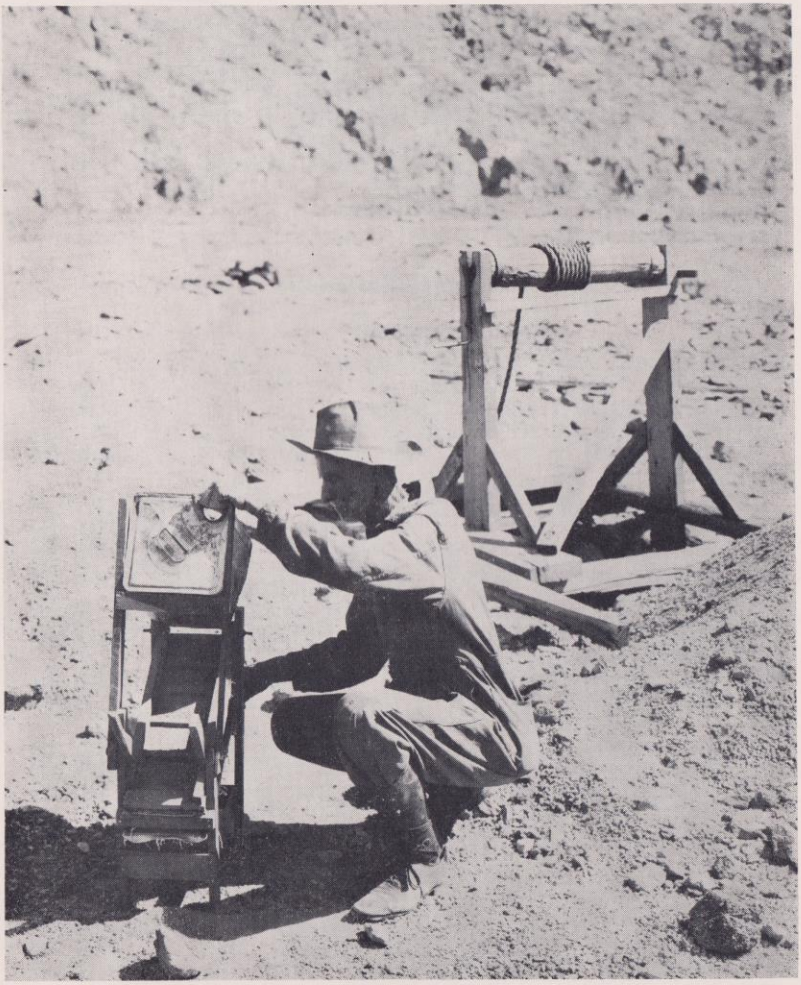
MUD POTS—These are located about seven miles southwest of Niland, at the southeast end of the Salton Sea. The fields of mud are constantly bubbling, steaming, boiling and plopping their way upward. They lie directly in line with the great San Andreas Fault and were one time traced for a distance of 15 miles. They were then, of course, much more active. Water and mud heated by subterranean volcanic rocks are ejected through the vents in the earth's surface.

One often hears of the Paint Pots, very similar to those just described except that they were brightly colored. They have now been submerged by the waters of the Salton Sea.

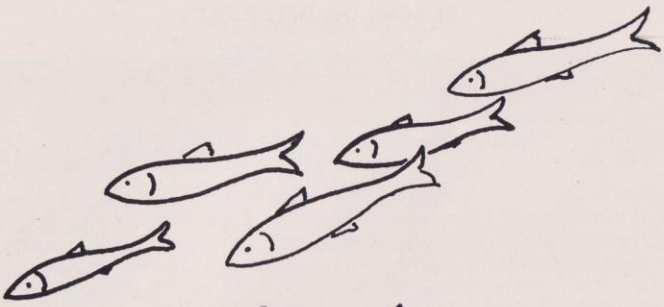
DRY ICE PLANT—In 1942 there was a flourishing dry ice plant industry in this area, but operations have been suspended, and its ruins can be seen from the road leading to the Mud Pots. However, there are smaller wells of carbon dioxide (used in the manufacture of dry ice) and these are being worked.

PUMICE BUTTE AND THE OBSIDIAN BUTTES — These lie southwest of the Mud Pots, Obsidian Buttes being the southernmost. The floating rocks and black glasslike stones found there make interesting souvenirs from the Salton Sea. These Buttes, like the Mud Pots, lie in the fault line, indicating that at one time the molten layers under the earth's surface broke through forming these foreign Islands in a sea of sand.

MULLET ISLAND—is a curiously weird place alternately inhabited and abandoned by those who see possibilities there. It is now a Peninsula, but it and the Pumice and Obsidian Buttes have been Islands in prehistoric as well as recent times. The shorelines of the old Lake Cahuilla are visible on them. Much hunting and fishing is done from Mullet Island.



Dry washing for gold on the mesa east of the Salton Basin.



Appendix

FACTS AND FIGURES

1. The Salton Sea is located between Indio and Brawley and extends nearly to Oasis on the north and to Calipatria on the south. It lies in both Riverside and Imperial Counties. The Sea is bordered by Highway 111 on the east and Highway 99 on the west. The main line of the Southern Pacific Railroad (Indio to Niland and Yuma) runs parallel to Highway 111 along the Sea.
2. In ancient times it is known that the Sea covered this area. It is believed that the Gulf of California swept in later, when the earth subsided. The Sea water was followed by fresh water from the Colorado River, forming an immense Lake. The shoreline of this ancient Lake Cahuilla can be seen on the mountains.
3. The Salton Sea was formed in 1905, when the Colorado River broke through an irrigation ditch and flooded the Salton Basin (September, 1905, to February, 1907).
4. The Southern Pacific Railroad ran through the middle of the Basin when the waters came. There was a salt mine in the northern section and there were a few ranches in the Basin.
5. The New and Alamo Rivers, flowing through Imperial Valley, and the Whitewater Channel, in Coachella Valley, along with other drainage ditches and springs running into the Salton Sea, provide enough water to keep the Basin filled to its present level. The Salton Sea is a natural drainage Basin for approximately 75,000 square miles of territory.
6. Mountains form a perfect setting for the Desert Sea. The San Jacinto Mountains lie to the northwest, the second loftiest in Southern California; the Santa Rosa Range lines the Sea south of these; then to the southwest, the Vallecitos. These mountains are members of the Peninsular Range, which extends into Lower California. It is this great barrier which separates Coachella and Imperial Valleys from the Coastal plains and protects them from the storms which blow in from the Pacific Ocean. To the north are the Orocopia Mountains, then southeast of these and bordering the Sea to the east are the colorful Chocolate Mountains.
7. The Coachella Branch of the All-American Canal takes off just north of the Mexican border a few miles east of Calexico and runs along the foothills east of the Salton Sea, around Indio, and its laterals extend as far as the Imperial County Line, at the north-

west end of the Sea. The Coachella Branch is 124 miles long now, and 80,000 acres will be irrigated by its waters when all the laterals are completed.

8. Although the Sea is shallow for several hundred yards from shore, it is 70 feet deep in some places. It is 35 miles long and 10 to 16 miles wide.
9. The surface of the Salton Sea is 240 feet below sea level.
10. The large salt beds left in the Basin by ancient lakes are mostly responsible for the salt content; however, the rapid evaporation now also accounts for some saltiness. The salt content is about the same as the Ocean.
11. Those who have bathed in these waters regularly have been amazed by the rapid healing of any cuts or abrasions. Many with rheumatism and arthritis claim marked benefits.
12. Swimmers agree that the Salton Sea is ideal for swimming. There is no tide or undercurrent, the waves being governed solely by the winds. The waters are nearly always smooth enough for good swimming and in many places one can go out one fourth mile without being in too deep to touch bottom. Then he may swim as far as he likes parallel to the shore without the slightest danger. There are no holes, treacherous tides or sea life to fear.
    Children shout with joy as they play safely along the beaches or in the shallow water.
    The Sea can be very treacherous to those who go far out during the windy seasons. It is the wise hunter or fisherman who travels within easy distance of the shallow water, for the storms rise suddenly; waves, dashing high, relentlessly and in close succession, give one far out with inadequate equipment small chance to reach safety. Those who are familiar with the Sea have learned to watch for storms. These can be seen coming from any direction by changes in color or roughness of water, white caps and clouds of dust in the distance.
13. Silvery Mullet abound in the Salton Sea. As many as 10 tons are caught at one time by the commercial fishermen. Any holder of a sporting fishing license may take mullet from the Salton Sea at any time of the year, between one hour before sunrise and one hour after sunset. The daily bag limit is 20 pounds. The fish may be taken by use of the hands, by line with one or more hooks, or by use of dip nets not greater than six feet in diameter.
    As the Mullet are vegetarians, it is difficult to catch them with a hook and line. However, in Florida they have been caught with a very small hook (No. 12), baited with redworm, doughball and raisins. Flies have also been used with some degree of success. While feeding along the surface, the Mullet accidentally attempt to ingest these baited hooks.
    The Mullet is delicious fried, baked, canned or smoked. It is desirable to remove the skin and the fatty layer just below the big bone along the ribs on the upper side of the abdominal cavity. The fish range in weight from 4 to 15 pounds. They are being canned commercially. Large schools of Mullet travel the length of the Sea and flashes of silver can often be seen as they jump high into the air. Sometimes the schools stay in one vicinity for several

days before moving on. When the water turns greenish along the shore, it is often because of their presence nearby as they are feeding and stirring up the vegetation on the bottom of the Sea. Their stomachs are similar to other vegetarian-feeding animals. They have livers and an organ which appears much like a gizzard. There are two kinds of tiny fish (Cyprinodonts) inhabiting the marginal areas of the Salton Sea. These are desert Killi fish (or pup fish) and the mosquito fish. These provide food for the many birds.

Fish from the Gulf of California are being introduced to the Salton Sea by the Division of Fish and Game. However, there are not yet sufficient numbers to provide sport. Those which have so far been planted are: Corbina, Leatherneck, Bonefish, Halibut, Totuava, Smelt, Perch, and Anchoveta.

14. The temperature of the water varies much during the year. In summer it is warm day and night; in the spring and fall it is in the 70's; and in December, January and February it is in the low 60's at times.
15. Occasionally one notes a rusty color of the water along the shore. This is due to the presence of an excessive growth of small microscopic plants. These are free floating during life and when conditions are especially favorable they increase with phenomenal rapidity, so that they color the water.
16. This Sea has the reputation of being the world's fastest body of water because of the low altitude and accompanying density of water. Speedboat races are held in the fall of each year and many records have been set.
17. There were no barnacles in the Sea before the last war; they were brought in on the sea planes.
18. Several types of small shells are found along the beaches and in the soil throughout the Colorado Desert. These are fresh-water shells and were brought in by the Colorado River during her many visits to the Salton Basin.
19. More than 200 varieties of birds inhabit this area. Among those found along the shores of the Salton Sea are: ducks, geese, seagulls, pelicans, teal, snipe, grebe, willet, egret, sandpiper and killdeer. Ducks and geese begin migrating as early as September.
20. The Washingtonia Palm is a native tree of the Salton Basin. These trees sometimes reach a height of 60 or 70 feet. The columnar trunk is topped with a crown of green fan-shaped fronds, some of which sprout each year from the top of the tree, while the old ones beneath dry and fall against the trunk forming a shaggy brown collar under the green. Many small groups of them stand hidden around water seeps in little canyons, and others can be seen from the Highways. They are a sign of the presence of water, but as the trees are very tolerant of alkali, the water is not always sweet. The fruit is small and black, but edible.
21. Tales of lost gold mines are prevalent in the desert and there is always someone with jeep, pick and shovel on the trail of fabulous riches. Pegleg Mine is the one most frequently sought in the Salton Sea region.
22. The "Winning of Barbara Worth," by Harold Bell Wright, is a fact-

fiction novel dealing with the reclamation of Imperial Valley. As this story has done much to publicize the Imperial Valley, several businesses there have been named for the heroine, Barbara Worth.

23. Crops: **Imperial Valley**—Since 1940, when waters from the All-American Canal first flowed into Imperial Valley, agriculture has taken great strides. The Valley is now one of the leading agricultural production areas in the nation. Its controlled farming makes it possible to grow a great variety of products, to produce the year around, and to harvest tremendous per-acre yields, which have been exceeded nowhere.

The Imperial Valley is famous for the nation's earliest melons, and huge truckloads of alfalfa hay are shipped out nearly the year around. Flax and sugar beets are two major crops which have recently been added to the long list of produce. Per-acre yields of flax are more than three times the national average. Imperial County is the nation's largest producer of beet sugar; one of the most modern sugar refineries in the world has been constructed in the Imperial Valley.

Lettuce and carrots take the lead in the vegetable crops; other are cabbage, peas and onions, tomatoes, squash, cucumbers and asparagus. Citrus fruit, grapes, grain, cattle and sheep all have their places in the vast industry of the Imperial Valley.

Crops: **Coachella Valley**—Being a winter resort center and the date capital of the world, Coachella Valley's potentiality is tremendous. Thousands of visitors come to see the unusual date gardens and to enjoy the winter sunshine.

Many varieties of dates have been imported to Coachella Valley from the Persian Gulf Region. The Deglet-Noor is grown most widely at present and is grown in no other place in the United States. These are considered the finest in the world.

Of the grapes, principally Thompson Seedless are grown, their chief value being in their early maturity. Coachella growers ship their grapes in June or July, well ahead of other producers.
Grapefruit is the most important citrus. Tangerines are second, then lemons.

The principal garden crops are sweet corn, green beans, tomatoes, onions, lettuce, eggplant, peas, potatoes, spinach, peppers, squash, okra and melons.

Cotton and flax are also important crops.

24. Climate: In the Colorado Desert the sun shines practically the year around. The percentage of sunshine is higher than for any other division of the United States. There are short mild winters and warm summers. Fog and smog are unknown. The prevailing low humidity gives the atmosphere a bracing quality which is entirely lacking in the milder climates.

Along the Sea the summers are from 10 to 15 degrees cooler because of the Sea breezes, which blow almost constantly. During the summer months, winds from the desert come infrequently and for only an hour or so at a time. At these intervals the temperatures may rise as much as 15 degrees in ten minutes. In the

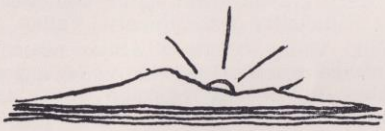
summer the prevailing winds are from the southeast during the day and north at night. Winds are strongest in the spring, most commonly coming from the west or northwest.

The Peninsular Range on the west is mostly responsible for the sunshine and clear skies in the Salton Sea Area, Coachella and Imperial Valleys. Few heavy rains pass the lofty barrier into the Valleys below. In the winter one often comes from black thunder clouds and pouring rain in the mountains to blue skies and warm sunshine in the desert region only a few miles away.

Although there are only three or four inches of rain each year, thunder storms do produce heavy local rains occasionally. There are numerous culverts along the highway through which storm ditches run toward the Sea.

In winter there is a wide variation of temperature during a twenty-four hour period, as warm days are quite often followed by nights of temperatures as low as 28 or 30 degrees.

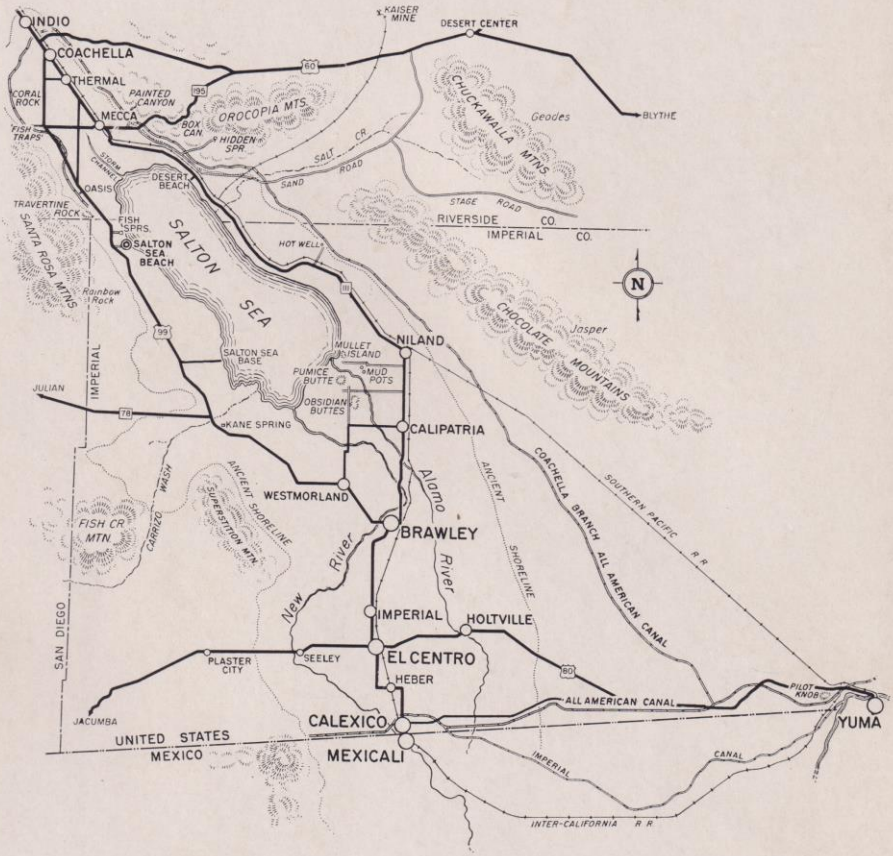
Standing on the shores of the Salton Sea in summer, one revels in the gentle Sea breeze as he looks desertward where unmentionable temperatures prevail; in winter, through sunfilled skies one often sees snow or cloud-capped mountains only a short distance away.



A Sketch

With words spent and papers neatly stacked, this study of the Desert and Sea is finished, but not complete, nor can it be; for how can one adequately tell of phantomlike qualities in white moonlight beside a diamond-studded Sea — these ethereal qualities carried over under a brilliant sun, where delicate fleeting tints give way to shadows, then a rosy glow—morning's scintillating waters, evening's Sea of crystal blue.

And how can one adequately tell of a future as bright as the sun, moon and stars, which all seem by their clear sparkling brilliance here, to be ever-featuring this Land of the Desert Sea.



Salton Sink in 1952

Known today as the Imperial Valley, this reclaimed desert area—watered from the Colorado River—supports a population of nearly 100,000 persons, and is one of the most productive agricultural regions in the world.