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# **GREAT SALT LAKE** FAST EVAPORATING

IT MAY DISAPPEAR WITHIN 100 YEARS.

Left at the Mercy of the Sun by the Depletion of Its Fresh Water Feeders-The Record of Its Decline in Past Centuries Clearly Graven on Its Mountainous Shores.

From the Chicago Tribune.

Before another century nears its end the Great Salt Lake, the mysterious, tideless inland sea cradied 4.000 feet above the level of oceans, may have disappeared into air. For three decades its shore line steadily has been contracting, its depth continually growing less, until today its ultimate destiny is written so legibly that none deny the approach. The declaration that the waters are being wafted into the atmosphere is no figure of speech. Evaporation is the foe which in certain course of time, under prevailing conditions, is gong to transform the vast expanse of water into a huge sait

Ages ago, thousands of years, the geologists say, the Great Salt Lake, then a sea covering the greater part, possibly the whole, of the great basin, began to subside, but strangely enough the agency which now is hastening its disappearance, is distinctly of human origin. Of more astonishing purport still the Mormons, who made the valley of the Jordan widen from a narrow strip of green to miles on miles of fields, of unexcelled fertility, are themselves the people who have sacrificed the lake. That they may exist, that their rich tracts may continue to bear. they deliberately are cutting off the source of fresh water supply of the mountain sea. Stagnant and helpless the lake is coming to lie at the complete mercy of a pittless sun.

## Not Fed by Brings.

Not many years ago geographers and descriptive writers took a fancy to expressing a belief that the Great Salt Lake was fed not alone by the four rivers which empty into it, but by hidden springs at its bottom. As long as no one took the trouble to question the assertions, they were accepted as facts and by many persons are still credited. If there were springs at intervals along the bed of the lake it would not matter so much whether the rivers continued to pour their contents into the basin, but no springs exist. They were called into the pages of text books and into the accounts of travelers to explain why the lake is so exceptionally salt. It sounded much better to say that nature by one of its freaks, had opened up the crust of the earth at this point and sent volumes of briny water bubbling forth, something after the style of geysers and sulphur springs, than to make the simple statement that the saltness, as with the ocean, was due to the proces of evaporation on a body of water lacking a drainage outlet, and that its excess was the consequence of altitude. Plainly enough, if the inflowing water be diverted to other uses before it reaches the lake, there will come a day when the salt deposit, which is the result of the long warfare between sun and water, will stand exposed, its blanket gone.

The Mormons, more, perhaps, than any class of settlers in the arid districts of North America, have mastered the science of irrigation. They have been studying and experimenting for over half a century. Unfortunately for the Great Salt Lake, the lessons in economy in the usage of irrigation rivulets have not served to keep pace with the increase in population and the consequent necessity of the continued reclaimation of arid land.

# Rapid Evaporation.

The Great Salt Lake is 4,200 feet above sea level. At this altitude the evaporation is something enormous even with fresh water, while the action of the salt increases the dissolution a bundred fold. If water could be preserved, once it has been directed to a reservoir, Great Salt Lake might hold its expanse of 1870-then 2,360 square miles-for unnumbered years to come. Yet its eventual fate would be unchanged, for it is decreed that the great Salt Lake is not to endure upon the face of the earth. On the mountains which rise from its shores it has written the story of its fall of 1,000 feet. Although it is given to no one to know the number of centuries which have witnessed the dwarfing process the fact itself has been made so plain

that he who gazes may be enlightened. The successive steps of the descent from mightiness to comparative lowli-



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ness are graven on the ranges mountains, which are within sight of the take on three sides. The fronts of some of the mountains have the appearance of having been formed by piling truncated pyramids, one on top of the other. The different shore lines of the past stand out as distinctly and as evenly as if a surveyor's line had been run along the face of the ridges.

## Terrace Effects.

The terrace effect has one of its best illustrations along a spur of the Oquirrh range at the south of the lake, When the body of water was a sea in truth, these jutting mountains may baye been a long, narrow island. Either that, or else they were entirely sub merged. In the latter event the surface has fallen more than 1,000 feet how much more no standard is left by which to judge. The line of the tor terrace is near enough to the summit of the range to permit the theory that once there was still a higher level, above the crest.

That the belief is not illogical is shown by a comparison of the appearance of hilly islets in the lake, with the mountains back from the shore line. Frequently an island shows a single terrace on the line, generally, of the lowest of the markings of the coast range. The level of the second terrace comes above the top of the hill, furnishing proof that the island, at least, was once far under water.

No imaginary description can give an adequate idea of what must have been the size of the primeval sea. Many geographers have asserted that originally it filled the entire great basin of which the so-called Great American desert is but a part.

### A Mystery of Science.

The greatest mystery about the tideess ocean lurks in the manner in which it subsided. By the mountain markings it would seem that some known agency made its force felt at regular intervals, turning a portion of the contents of the basin with the precision of a man emptying a bucket The power never was exerted in its entire force, else there would be not so much as a strip of water remaining If it was of volcanic origin, its application in all probability, was made on the region to the northward and northwestward of the shore, each disturbance opening a wider and deeper way to the sea.

That the lake drained at one time into the Pacific Ocean long has been a general belief, though geologists as ; rule have insisted that the opening did not exist when the surface was at its highest level. They have asserted for the most part the conviction that the body of water was as free from outlet then as now, and that the sinking of the earth's crust to connect the lake with what are now the Snake and Columbia rivers was the first sign of decadence A few have demurred and have pointed out that the lake was a fresh water body in the prehistoric era, a state which would not have obtained long had there been no rivers to drain its flow into the ocean. The issue is one which must ever go unsettled.

## Reaching Lower Levels.

At a rough estimate the first depres sion lowered the lake upwards of 300 feet, assuming that the highest terrace was the highest lake level, letting loose a torrent which must have torn its way through mountains as If they were reeds, leaving plains where lofty peaks had been, digging into the bowels of the earth, perhaps quenching for the time being the subterranean fires which set it free-until finally it bored its path to the Pacific, 2,000 miles from the starting point of its mad career. None may guess the interval between the first depression and the second. The mountain handwriting tells of three

separate falls, but gives no limit of the time which elapsed before one followed the other. After the third outpouring a different disturbance must have raised the boundary walls and blocked the former outlets. Three gateways may have closed at once; there is no saying that the freed waters followed the identical routes to the ocean. Indeed, the contrary is more within the range of probability. The volcanic

## theory fits nearly every hypothesis. An Abundance of Salt.

The lake became salt after its final gress was cut off. Were outlets to be formed at this late period it would remain salt for ages, so deep has become the salt bed in the centuries since stagnation has been the fate of the waters above. A few months ago a professor who made a series of experiments, in the interest of salt industry of the lake, announced that if every other source of salt supply in the world were cut off, the Great Salt Lake would be able to furnish the ingredient as long as the world should endure. In that statement he made no alculations for the possibility that the lake itself should cease to exist, but even in that event, it is estimated that the solld deposits on its bottom would be sufficient to prevent salt hunger anywhere on the earth for as long a period as the mind can grasp.

It did not take the lake long to become intensely saline after it was locked in. For its expanse, it was shallow even then, not more than tea feet deep at its deepest place, probably not that. The maximum depth today is sixty feet, and the average is not half that figure. At some points one may wade a mile and more from shore without getting in water over the knees. It was as if a huge and shallow basin had been spread out in the sun. The ratio of evaporation, fargreater than at sea level, hurried the chemical action and in a comparatively short time the fresh water lake was a salt sea. What may have been the effect of the alkali in the surrounding soil is problematical. Some persons have credited it with being the fundamental cause of the exceptional salinf

In the proportion of solid matter in its contents, the Great Salt Lake is surpassed only by the Dead Sea. In the former the ratio is \$6 parts of water to 14 of solids, in the latter 76 parts of water to 24 of solids.

# The Salt Industry.

The lake had been a long time an adjunct of Salt Lake City before the Mormons set about to profit from the opportunity for salt making. In late years the industry has increased to such a degree that it is not improbable that the water pumped out has contributed somewhat to the lowering of the lake. The process of salt making is simplicity itself. Pipes are run out into the lake and the water is pumped ashore, where it is distributed to the depth of several inches over prepared blong beds, formed by banking the mud up into little walls. After evaporation, when the water is gone and only the white sediment remains, men are put to work shoveling it up into a heap in the center. The product is uneffined salt, which is loaded upon flat cars run out upon the sait flats by a convenient switch track, and shipped

# **OUEER SCENES IN A** MANILA PLAYHOUSE

THE NATIVE DRAMA IN THE PHILIPPINES.

What a Theatre Goer Can See for Thirty Cents in Mexican Money. Description of the Play, the Players and the Audience-Good Cheer While the Programme Lasted.

Manila Letter in Chicago News, Yesterday I visited a Filipino theatre; and though the others present enjoyed it in a different way, I warrant me of them enjoyed it more heartily

It is conducted in a large nipa building that stands beside our road into the city on Cervantes street. Passing in at the gate, an inclosure was found where were booths, at which disposed for sale were bottles of pop and of socalled lemonade, eigarettes, sweets of various kinds-or, as they are called in Spanish, dulces, that word including all forms of sweets, candies, desserts

and the like The performance was announced at 4.30, but I was early, so a half hour was spent in looking about, engaging in good-natured chat and chaff with all the waiting men, women and children. But I should say all children. for such they are, no matter what their age. One old fellow wore red breeches. and I believe firmly he belongs to Gen. Pio del Pilar's famous Twelfth regiment that we were chasing last week, yet he was so childishly happy that I bore him no grudge for shooting at me.

### The Audience.

There were belies and beaux, and the beaux presented the belies with necklaces of tuberoses and rose geranium leaves skillfully strung on thread and making a pretty band; but when they were all assembled inside. the odor of the flowers was too much like a funeral to be cheerful. The women's clothes were immaculate, starched stiff and looking as fresh and neat as possible; their neck handkerchiefs are their pride, and are bordered with lace, said in many cases to be valuable. One girl whom I no ticed seemed got up specially for the occasion and was quite conscious. She had on long black stockings, and was the only one I saw who bore that distinction, all the others scuffling around in their wooden-soled slippers suspended by the band across their bare toes, This particular girl showed by her manner she knew she was pretty, and she was, in spite of having indulged in the Spanish custom of putting powder on her face, but she was not shy, and if I had been able to speak Tagalo I am sure I could have fed her on dulces at the lunch counter all afternoon. I might even have made it with Spanish, but I didn't.

The band, a regular Filipino band played in an open nipa building outside the theatre, and everybody walked about and chatted in the most goodnatured way possible. They were as happy as children and laughtd and talked to me, and some things I understood and some I didn't, but it made no difference. The band, on my appearance played "Marching Through Georand "Rally Round the Flag, Boys," and all smiled and looked at me, and it was so good-natured I forgot to be embarrassed by so much attention. A little interruption occurred while the "Rally Round the Flag" wa cocks picketed nearby, and one pulled his picket in, and immediately there was a fight which adjourned the band and caused everybody to rush, excited, to the spot. But the owner shortly appeared and stopped the fun, so we went back and rallied round the flag some more and ate dulces and drank pop and chatted until the clanging of the bell inside warned us of the approaching performance.

The play bill at the door announced 'The Martyr Husband" in which "El pastor Leopoldo" and "La pastora Leogarda" performed; last week it was "The Crime of Love," and possibly this

# was the sequel.

My ticket had cost 30 cents (Mexican) and entitled me to an orchestra seat, but I got a preferable position in small box situated at the rear of the middle aisle, raised about six inches above the aisle and surrounded by a alling draped with blue cotton stuff, There were three seats in the box, and some pretty girls in a group near me were having a lively time, giggling, attracting my attention so that I saw I had something to do with it, but could not tell what until one of hem, evidently on a wager, came over and sat in my box. She was eating a roasted ear of corn, and seemed to feel very silly after she had come, and I allowed her to depart after we had said a few things to each other which neither understood, and all the time the rest of her party kept up their giggle and chatter

An old gray-haired usher stood near the door and directed people, while another-a fat, good-natured old fellow in slippers, and whose cotton trousers flapped around his ankles-met them in front of my box and escorted them down the aisle. The band now came in from outside, and, taking the usual place, played waltzes while the seats filled and everybody chatted and smoked, till finally a bell on the stage set up a dreadful clanging and the curtain rose.

# The Play.

The dialogue was in Spanish, and it began by each of five people, who were seated in a very stiff row, reciting in a most stilted manner, both of voice and gesture, an introductory story concerning the betrothal of Don Somebody or Other to Dona Somethins Else, without their having anything to say about it themselves. In course of time the girl appeared and told her story in a high, squeaky voice. She was got up in a sort of Diana style of dress made of green satin, covered

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with low neck and short sleeves, while her aigrette was huge, and I wondered why she was wearing that rig in the wild woods where she appeared.

with his father and a few other business men, the young couple were betrothed, and, walking toward each other, she stood very stiffly and placed her left hand about over his liver. and he put his left hand behind her waist and his right-ah, well, I have no business discussing a woman's anatomy. I know only that they were both as stiff as possible and Diana did not look or act happy over her betrethel. Each scene ended with a sor; of grand march, and the half dozen people on the stage stood and marked time till they caught it, and then pranced in twes down to the front, and, halting for two or three steps, faced outward and marched to the corners and thus around until they disappeared at the back Every exit ras made in this manner, no matter If there was but one person concerned, Curtains were raised and dropped for the different scenes, and the stage setting was quite like our own, only very simple; indeed, it was not typical as a Filipino theater, but was quite Spanish in costumes, dialogue and plot. And, true to report, the heroine had several admirers on the string. Her fiance, to use a slang expression, was not in it, and when the real article appeared on the scene and announced himself you could tell at once by his general get-up that he had the confidence which must carry him to suc-

## Lively.

He talked a long time about it, all to himself, and mused and raved, vowed and prayed, shouted and hissed, and when Diana appeared-I have forgotten her name, but this is what she looked like-he immediately began to chase her around the stage, dropping on his knee about every third step. However, she knew her business and was by turns haughty and coy, disdainful and reluctant, until another suitor appeared on the scene and tried to get up a row with the favorite and almost succeeded; indeed, they drew their swords or knives or something else of that sort, and that fetched her, She declared her preference, threw hersolf into his arms and left the rejected gentleman to take himself off without even the assistance of the orchestra. But he marched around and out just the same, only stopping at each turn to utter curses, which were greeted with shouts by the audience and whistles from the boys.

About this time it was growing dark and a gray-haired old man who look-ed exactly like one of the pet monkeys at camp, came around with a ladder. and, leaning it against the posts, climbed up and lighted oil lamps through the room. The pop began to flow, cigarettes were glowing everywhere, dulces and roasted corn were

in demand and everybody was enjoying the afternoon hugely, they were attentive to the stage, and an occasional peal of laughter or loud talking was promptly hissed, while hu-morous remarks were greeted with shrieks. Her fiance appearing opportunely

The first act ended without the wedding, and while it might easily have occurred between the acts, I concluded not to wait and witness the poor fellow's martyrdom; it was evident from the heroine's performances that he was going to catch it thoroughly when the time arrived.

## HONEY AS FOOD.

There Is Health and Long Life in Its Use.

C. C. Miller, in "Gleaning in Bee | " A pound of honey will go as far as a

pound of butter; and if both articles be of the best quality the honey will cost the less of the two. Often a prime article of extracted honey, equal to comb honey in every respect except appearance, can be obtained for half the price of butter, or less. Butter is at its best only when "fresh," while honey, properly kept, remains indefinitely good-no need to hurry it out 3 of the way for fear it may become rancid. Sugar is much used in hot drinks, as

in coffee and tea. The substitution of mild-flavored honey in such use may be a very profitable thing for the Indeed, it would be better health. for the health if the only hot drink were what is called in Germany honeytea-a cup of hot water with one or two tablespoonfuls of extracted honey. The attainment of great age has in some cases been attributed largely to the life-long use of honey-tea.

Many people think "honey is honey. all just alike; but this is a great mistake. Honey may be of good heavy body, what bee keepers call "wellripened," weighing sometimes twelve pounds to the gallon, or it may be quite thin. It may also be granulated, or candied, more solid than lard. It may be almost as colorless as water and it may be as black as the dark-The flavor of honey est molasses; varies according to the flower from which it is obtained. It would be impossible to describe in words the flav ors of the different honeys. The different flavors in honey are as distinct as the odors in flowers. Among the lighter-colored honeys are white clover, linden (or brasswood), sage, sweet clover, alfalfa, willow-herb, etc., and imong the darker are found heartsease, magnolia (or poplar), horsemint buckwheat, etc.

Tastes differ as to honey as well as in all other things. White clover is so generally preferred to buckwheat, with Its very dark color and strongly marked

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flavor, that buckwheat honey always rules lower in price than white clover, yet there are some who prefer buckwheat to any other honey. Somewhat fortunately, one generally prefers the honey to which he is most accustomed.

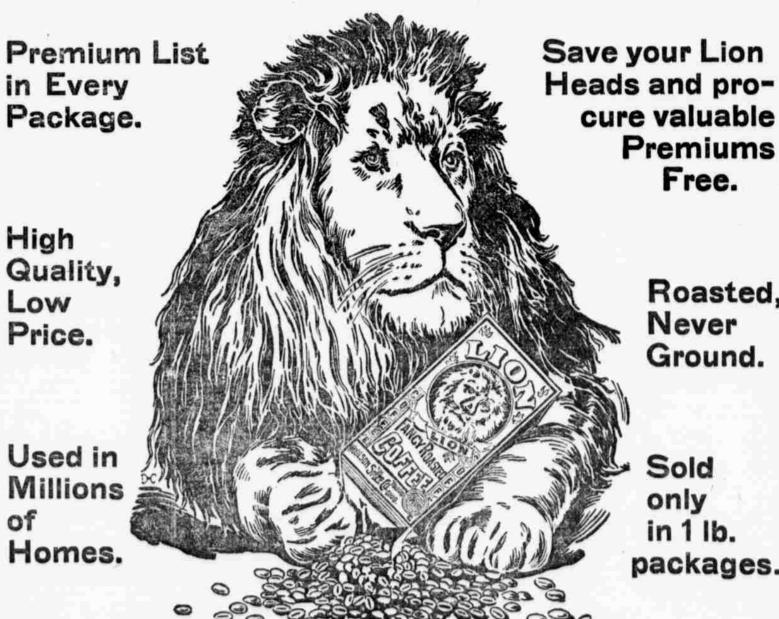
In these days of prevailing adulteration, when so often "things are not what they seem," it is a comfort to know that when one buys comb honey he may know without question he is getting the genuine article. The silly stories seen from time to time in the papers about artificial combs being filled with glucose, and deftly scaled over with a hot iron, have not the slightest foundation in fact. For years there has been a standing offer by one whose financial responsibility is unquestioned of \$1,000 for a single pound of comb honey made without the intervention of bees.

With extracted honey the case is different. When you see in the grocery a tumbler of liquid honey with a small piece of comb honey in the center, you may be pretty sure the liquid honey is not honey at all, but pure glucose. If not familiar enough with honey to detect it by the taste, your only safe course is to buy of the producer direct, or of some one who knows as to its source and upon whose honesty you

Aside from its use in an unchanged state as a direct accompaniment of bread, or biscuit, hopey is used by bakers in manufacturing some of their choicest wares. An advantage in using honey for anything in the line of cake is in its keeping qualities. Even if the cake should become dry, close it up in a bread can for a time and its fresh-

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