

the various companies, have been analyzed by the writer; and of these the following are typical:

	Salt made and sold by the Inland Salt Co.	Salt made and sold by the Jeremy Salt Co.
	per cent.	per cent.
Sodium chloride (Na Cl).....	98.407	98.300
Calcium chloride (Ca Cl ₂)....	.371	.345
Calcium sulphate (Ca SO ₄)....	.650	.680
Magnesium sulphate (Mg SO ₄)..	.030	.042
Insoluble matters.....	.103	.472
Moisture.....	.442	.158
	100.002	99.997

According to published figures, commercial bay salt from other sources seldom exceeds 96 per cent sodium chloride.

Next to common salt, in order of abundance and ease of preparation, sodium sulphate should be named. This is deposited in the crystallized form as mirabilite (Na₂ SO₄ · 10 H₂O) during the winter season. When the temperature falls to a certain point, the lake-water assumes an opalescent appearance from the separation of the sulphate. This sinks as a crystalline precipitate, and much is carried by the waves upon the beach and there deposited. Under favorable circumstances the shores become covered to a depth of several feet with crystallized mirabilite. The writer has on several occasions waded through such deposits, sinking at every step to the knees. Speaking only of the amounts thrown upon the shores, and of most ready access, the source is practically inexhaustible. The substance must be gathered, if at all, soon after the deposit first appears; as, if the water once rises above the critical temperature, the whole deposit is taken again into solution. This change is very rapid, a single day being oftentimes sufficient to effect the entire disappearance of all the deposit within reach of the waves. Warned by these circumstances, the collectors heap the substance on the shores above the lap of the waters, in which situation it is comparatively secure until needed. To a slight depth the mirabilite effloresces, but within the piles the hydrous crystalline condition is maintained. At the present time there are thousands of tons of this material, heaped in the manner described, remaining from the collections of preceding winters. The sodium sulphate thus lavishly supplied is of a fair degree of purity, as will be seen from the following analyses of two samples of the crys-

tallized substance, taken from opposite shores of the lake.

	1.	2.
	per cent.	per cent.
Water (H ₂ O).....	55.070	55.780
Sodium sulphate (Na ₂ SO ₄)....	43.680	42.325
Sodium chloride (Na Cl).....	.699	.631
Calcium sulphate (Ca SO ₄)....	.407	.267
Magnesium sulphate (Mg SO ₄)..	.025	.018
Insoluble.....	.700	.766
	99.991	99.757

For purposes of easy comparison, it should be added that chemically pure mirabilite (Na₂ SO₄ · 10 H₂O) consists of 44.1 per cent of sodium sulphate (Na₂ SO₄) and 55.9 per cent of water.

Besides such substances as are presented in a comparatively pure form by the lake, the price being simply the labor of collecting, there are many other compounds that may be had for the asking. The unlimited quantities of sodium sulphate spread upon the shore every winter, forcibly suggest the sodium-carbonate industry as a promising undertaking, the chemical labor for preparing the carbonate by the Le Blanc process being, in fact, already half done. A few years ago an establishment was founded for this purpose in Salt Lake City, and, though the labor thus far accomplished has been mostly experimental in its nature, the results conclusively prove that sodium carbonate and a number of other chemical compounds may be derived from the lake-water with ease and profit. When once such manufacture is undertaken on a proper scale, the output of soda need be limited only by the capacity of the works. Caustic soda and sodium hyposulphite have also been prepared from the lake.

The importance of the Great Salt Lake as a source of chemical supplies is still unrealized. Figures would have but little meaning if used in an attempt to express the chemical wealth diffused through its briny waters.

Even for the unscientific observer and the casual visitor, the characteristic phenomena of the lake possesses a fascinating interest. Many persons who would be but slightly moved by the statement that the waters of the lake vary in density between 1.12 and 1.17 would be deeply impressed to learn that a bather can float at ease in the water with a large proportion of the body above the surface. When once accustomed to the lake, the swimmer can lie in the watery cradle, with his head resting on a pillow of wood, as securely as in a suspended hammock. The chief difficulty in swimming is

the tendency of the lower limbs to rise above the water; and the principal danger lies in the occasional entrance of brine into mouth or nostrils, producing a painful irritation followed by suffocation.

The concentrated state of the brine insures the lake against the fetters of frost. Ice is not to be seen upon its bosom even during the severest winters. The temperature falls at times to -20 degrees F., yet the lake remains as freely open as during the warmer seasons.

The antiseptic properties of the water have been known from the time of its earliest investigation. Captain Stansbury reported a test, which has been repeatedly verified since his time. His description was as follows:—

“Before leaving Black Rock, we made an experiment upon the properties of the lake for preserving meat. A large piece of fresh beef was suspended by a cord, and immersed in the lake rather more than twelve hours, when it was found to be tolerable well corned. After this, all the beef we wished to preserve while operating upon the lake was packed into barrels, without any salt whatever, and the vessels were then filled up with the lake-water. No further care or preparation was necessary, and the meat kept sweet, although constantly exposed to the sun. I have no doubt that meat put up in this water would remain sound and good as long as if prepared by the most improved methods. Indeed, we were obliged to mix fresh water with this natural brine to prevent our meat from becoming too salt for present use, a very few days’ immersion changing its character from corned beef to what the sailors call ‘salt junk.’”

As would be expected of so concentrated a brine, and as has been proved by observation, life in the waters of the Great Salt Lake is confined to few species. Some writers have declared that no form of animal or plant life exists in the lake; but this is an error, with but little excuse for its perpetration. The tiny crustacean, *Artemia fertilis*, exists in very great numbers, often tinting the water over wide areas with its own delicate pink. There is also *Ephedra gracilis* in its early stages. The pupa cases of this insect are often carried ashore in large masses, where they undergo decomposition with characteristic odorous emanations. One form of *Corixa* has also been discovered in the waters. The vegetable organ-